Commercial Real Estate Development FALL 2021

Development®

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Hudson Pacific Properties

Developer of the Year *58*

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853,520 SF
Sold on behalf of:
Grandview Partners

NATIONAL DEVELOPMENT INDUSTRIAL PORTFOLIO
Greater Boston, MA
544,993 SF
Sold on behalf of:
National Development

456 SULLIVAN AVENUE
South Windsor, CT
304,249 SF
Sold on behalf of:
Roebling Management

SANTA FE SPRINGS COMMERCE CENTER
Santa Fe Springs, CA
157,669 SF
Sold on behalf of:
AEW

PORTSIDE 55
Tacoma, WA
428,010 SF
Sold on behalf of:
Avenue 55

THE BOX YARD
Los Angeles, CA
261,528 SF
Sold on behalf of:
Bridge Development Partners

BLOOMFIELD LOGISTICS PORTFOLIO
Bloomfield, CT
566,000 SF
Sold on behalf of:
Sponzo Properties

MISSION OAKS CORPORATE CENTER
Camarillo, CA
749,725 SF
Sold on behalf of:
Greenlaw Partners & Walton Street

855 WIGWAM
Henderson,NV
232,856 SF
Sold on behalf of:
an Institutional Investor

CABOT INDUSTRIAL PORTFOLIO
Mansfield, MA
248,969 SF
Sold on behalf of:
James Campbell Company

280 RICHARDS STREET
Brooklyn, NY
312,000 SF
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Contents

Development® Fall 2021

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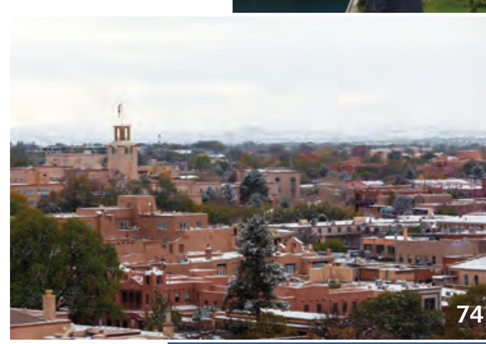

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Contents

Development® Fall 2021

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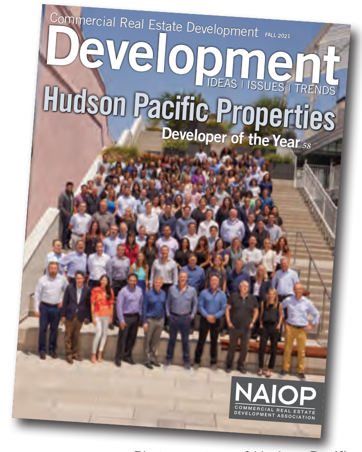

Photo courtesy of Hudson Pacific

Leadership and staff of 2021 Developer of the Year Hudson Pacific Properties gather at Harlow, the company's creative office development at Sunset Las Palmas Studios in Hollywood.

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Submit manuscripts that are educational and focus on industry trends, recently completed development projects and other issues of interest to NAIOP members. For more information, see www.naiop.org/magazine. Submit all inquiries to developmentmagazine@naiop.org.

Reprints and PDF files are available for a small fee; contact Kathy Jackson at jackson@naiop.org for more information. You can also share your favorite articles with colleagues and clients via email and social media, with links to articles online (www.naiop.org/magazine).

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A Note From the Editor

Adapting to the New Economy

This issue of Development magazine features articles on the ways in which commercial real estate continues to align with the post-pandemic economy.


Jennifer LeFurgy

NAIOP's Developer of the Year, Hudson Pacific Properties, has found success by building studios to meet the demand for streaming entertainment content, while Ryan Companies and Waterford Property Company are addressing the realities of senior and affordable housing, respectively. Longtime contributor **Ron Derven** examines how secondary and tertiary markets have weathered the ups and downs of the past two years. And influential writer **Joel Garreau** sits down with Development to discuss which types of cities will be the big winners in the aftermath of the pandemic.

I'm looking forward to seeing you at CRE.Converge in Miami Beach at the end of September.

Stay informed,
Jennifer LeFurgy, Ph.D.
Editor-in-Chief

Hudson Pacific Properties, NAIOP's 2021 Developer of the Year, focuses on creative office space and film studios along the West Coast. (Page 58)

Second-tier cities are experiencing explosive growth, and it doesn't appear that trend will be slowing down anytime soon. (Page 66)

Thirty years ago, author Joel Garreau's "Edge City" described a revolution in where Americans live, work and play. Today, he sees smaller, beautiful places like Santa Fe, New Mexico, embodying the next big change. (Page 74)

Future NAIOP Events

- **CRE.Converge**, September 26-29, Miami Beach, Florida
- **I.CON East 2021: The Industrial Conference**, November 10-12, Jersey City, New Jersey
- **Chapter Leadership and Legislative Retreat**, January 31-February 2, 2022, Washington, D.C.

For the most current information on upcoming NAIOP events, both virtual and in-person, visit naiop.org/Events-and-Sponsorship ■

Buoyed by a rapidly aging population, the senior living sector is poised for significant growth. Here are a few things that developers need to know. (Page 82)

Preliminary figures from the 2020 U.S. Census show that population growth continues in the South and West. (*First of a two-part series.*) (Page 14)

Mike Lafitte, Global CEO, CBRE Real Estate Investments and CEO, Trammell Crow Company, discusses taking over as leader of a global real estate firm at the height of the pandemic. (Page 32)

Building owners will need to be creative to develop truly engaging office spaces that will attract workers, particularly to urban cores. (Page 24)

Parametric insurance policies, which pay out based on an event such as a hurricane occurring in the geographic area near a property even if the property is not damaged, could be helpful for owners in regions that face recurring weather threats. (Page 22)

In a trendy area of Los Angeles, an ultra-hip organic grocery store stands out thanks to a multi-functional design. (Page 18)

Most Popular From Summer 2021

1. **"How Ascent is Pushing Mass Timber to New Heights"** (naiop.org/21timber), page 64
2. **"Eight Crucial Post-Pandemic Takeaways for the Industry"** (naiop.org/21takeaways), page 70
3. **"Starting a Lab Facility: A Primer for Real Estate Professionals"** (naiop.org/21lab), page 76
4. **"Asset Managers Can Play a Key Role in Tenants' Return-to-Workplace Plans"** (naiop.org/21assetmanagers), page 52
5. **"Stairs on the Rise"** (naiop.org/21stairs), page 58 ■

As costs for building materials keep rising, here are five things that developers, owners and builders of office properties can do to overcome these economic challenges. (Page 38)

Autonomous vehicles will alter the design and construction of parking facilities, but they probably won't change their size. (Page 52)

In California, a new program may provide a solution to the problem of "missing middle" housing in a state that has some of the highest apartment rents in the country. (Page 44)

Meet the four winners of NAIOP's Diversity Student Scholarships. They hail from backgrounds that have traditionally been under-represented in the commercial real estate industry. (Page 100)

Radiant slabs use flexible pipes embedded into a concrete floor to circulate water or electrical heating elements, reducing energy costs for building owners. (Page 48)

The NAIOP Research Foundation recently published a new report titled "An Overview of Emerging Construction Technologies" that explores advances in commercial construction. (Page 92)

NAIOP Austin, the association's newest chapter, represents the commercial real estate industry in the capital of Texas, which is also the fastest-growing city in the U.S. (Page 94) ■

NAIOP, Development Magazine Receive National Recognition for Communications Excellence

Awards honor the association's outstanding work in print, online and video during 2020.

By Trey Barrineau

NAIOP and Development magazine recently won multiple national and regional awards for excellence in communications and publications.

Azbee Awards

The staff of Development magazine was honored as finalists for Magazine of the Year in the 43rd annual American Society of Business Publication Editors (ASBPE) Azbee Awards of Excellence. Development was recognized for three consecutive issues from 2020 that focused on the commercial real estate industry's response to the COVID-19 pandemic.

Development's staff also received a national Azbee gold medal in the category of Single-Topic Coverage by a Team for the Summer 2020 issue of the magazine, which was entirely focused on COVID-19's impact on commercial real estate. (Development won a Mid-Atlantic Region gold medal in that category as well.) Additionally, Development won a bronze medal in the category of Feature Series for a collection of 10 articles that examined how the industry grappled with the pandemic. (The magazine was also honored with a Mid-Atlantic Region silver medal in the same category.)

Contributing editor **Ron Derven** won a Mid-Atlantic Region silver medal Azbee award in the Company Profile category for his article on NAIOP's 2020 Developer of the Year, Kilroy Realty, from the Fall 2020 issue.

NAIOP's Market Share blog won a Mid-Atlantic Region bronze Azbee award in the Trade Show/Conference Coverage category for its reporting from the association's I.CON Virtual Conference, which was held in June 2020.

Trey Barrineau

Development magazine was a finalist for Magazine of the Year in the 43rd annual American Society of Business Publication Editors (ASBPE) Azbee Awards of Excellence.

The Azbees honor outstanding writing and design work in magazines, newsletters and digital media from association, business-to-business, trade and professional publications.

SIIA Awards

NAIOP's CRE.Converge 2020 "sizzle" video won a national silver medal in the Software & Information Industry Association's (SIIA) Excel Awards in the category of Video — Single Entry (Promotion). The EXCELS are the largest and most prestigious awards program for association media, publishing, marketing and communication.

And Development's Summer 2020 issue on COVID-19 was a national finalist for Best Single Issue of a Magazine in SIIA's Jesse H. Neal Awards, which are widely regarded as the Pulitzer Prizes of business-to-business journalism. ■

Trey Barrineau is the managing editor of publications for NAIOP.


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Construction is Recovering but Faces Challenges

Materials costs have been on a rollercoaster ride for the past year.

By Ken Simonson

The long skid in nonresidential construction spending that began with the onset of the pandemic in early 2020 appears to be nearing the bottom, while multifamily construction continues to exceed early expectations. However, the path forward remains bumpy and uncertain.

The Census Bureau reported on July 1 that total construction spending in the first five months of 2021 exceeded the year-to-date total in 2020 by 5%. However, that masked the huge disparity between private residential spending, which jumped 24% — including a 20% rise in multifamily construction — and the 9% drop in private nonresidential spending.

Among the nonresidential categories, only a few segments had turned positive, including warehouses, hospitals and some manufacturing niches. But forward-looking indexes from the American Institute of Architects and Dodge Data & Analytics suggest better times are just a few months away.

Contractors face two obstacles currently, with a third potential problem in the offing. First, materials costs have risen at unprecedented rates. The Bureau of Labor Statistics (BLS) estimated in mid-July that the producer price index (PPI) for inputs to construction industries — a measure of the cost of all materials and services used in every type of construction — soared 26.3% from June 2020 to June 2021. That was more than double the largest increase in any previous year.

Meanwhile, a measure of contractors' bid prices, called the PPI for new nonresidential construction, climbed only 3.4% over the same period. The huge gap between contractors' costs and bid prices meant many firms were passing on only a small fraction of the cost increases they were experiencing.

Numerous materials contributed to the meteoric rise in costs. The PPI for steel mill products jumped 88% over 12 months. The index for copper mill shapes leaped 61%. The PPI for aluminum mill shapes climbed 33%, while the index for plastic construction products increased 22% and the PPI for gypsum products went up 18%.

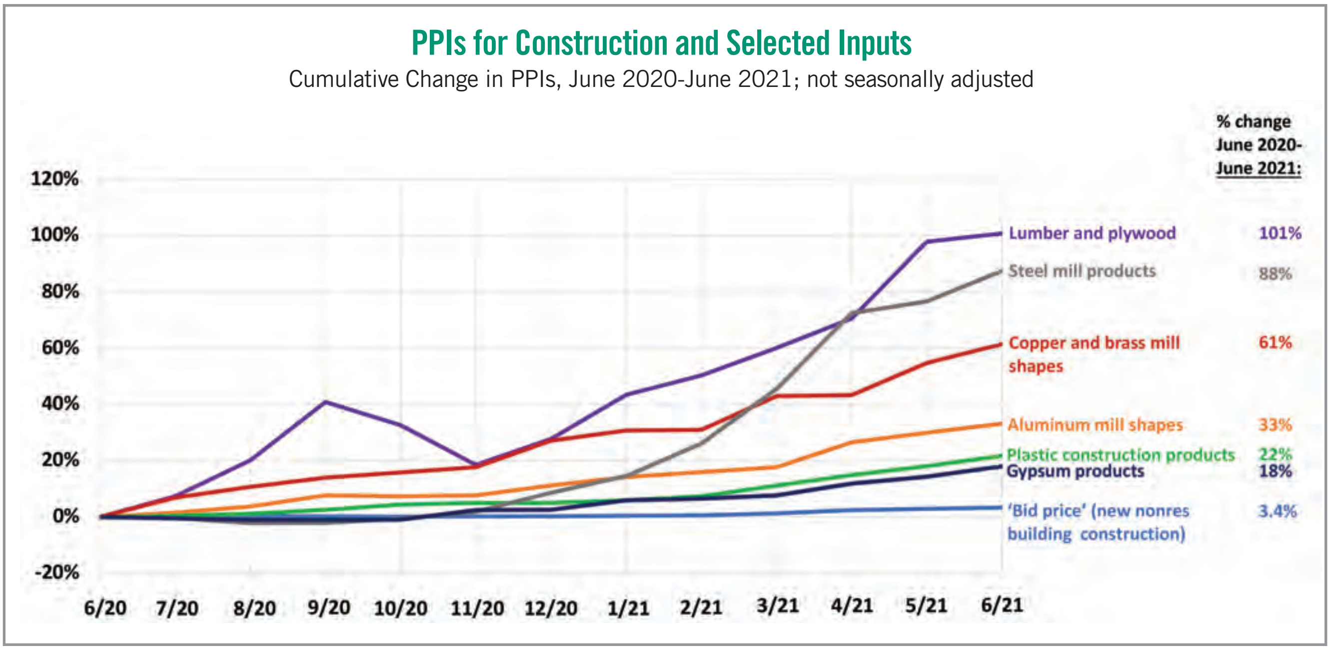
The Bureau of Labor Statistics (BLS) estimated in mid-July that the producer price index (PPI) for inputs to construction industries — a measure of the cost of all materials and services used in every type of construction — soared 26.3% from June 2020 to June 2021. That was more than double the largest increase in any previous year.

Year-to-Date Construction Spending: January-May 2021 vs. January-May 2020

Listed in order of 2021 spending; not seasonally adjusted

- Total 5%; private residential 24% (single-family 33%; multifamily 20%); private nonresidential -9%
- Commercial -6% (warehouse 8%; retail -22%)
- Office -12%
- Manufacturing -5% (chemical 6%; transp. equip. 3%; electronic -19%; food/beverage/tobacco 8%)
- Health care -3% (hospital 2%; medical building -8%; special care -6%)
- Lodging -27%

Source: ©2021 The Associated General Contractors of America, Inc.



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One item that had an even larger gain — lumber and wood products, which doubled in price over the year — has had a steep price decline since the PPI data were collected in mid-June. The price plunge has reportedly led some developers to restart multifamily projects they had shelved. But that decrease will hardly make a dent in the costs that most nonresidential contractors are absorbing.

The second major problem has been the unreliable supply chain. With lead times of as much as 11 months for bar joists and four to six months for roofing materials, some owners have been postponing projects. Even when goods are ready to ship from factories or ports, shortages of truck drivers and railcars complicate on-time completion of projects.

One more worry is the impact that the Delta variant might have on the construction workforce. Hospitalization rates have jumped among unvaccinated individuals. And many more individuals are incurring lingering symptoms that may keep them from returning to work or being fully productive. Unfortunately, a recent report listed construction and extraction employees as the occupation group with the lowest vaccination rate and highest hesitancy to get vaccinated. Thus, the construction industry, more than most, has the potential of losing experienced workers to renewed virus outbreaks.

In sum, construction appears poised to climb out of the depths, but the nonresidential side remains far below 2019 peaks. As the economic recovery expands, prospects for construction are brightening. But materials costs, supply-chain bottlenecks, and possible outbreaks of the coronavirus make the strength and timing of that revival uncertain. ■

Ken Simonson is the chief economist with the Associated General Contractors of America. He can be reached at ken.simonson@agc.org.

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Preliminary Census Findings and Their Implications for Commercial Real Estate

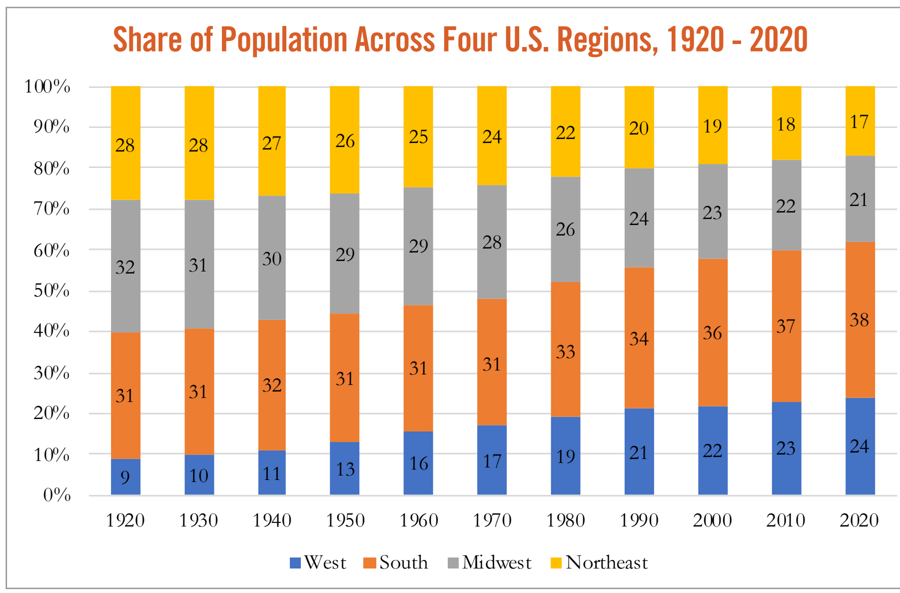
Remote work and an exodus from cities are two of the biggest trends to emerge so far.

First of a two-part series.

By Anirban Basu

Data from the most recent U.S. census is starting to be released. Findings from it will have significant implications for how investors value property, in which projects capital will be deployed, and how communities respond to zoning and development incentives.

While COVID-19 and its fallout have dominated headlines for more than a year, the census captures trends that are substantially more long-lived. The past decade has produced much change, including a foreclosure crisis, millennial maturation, immigration and trade policy shifts, cloud computing, the rise of the gig economy and many other innovations. These phenomena impact how and where people live, which in turn shapes commercial real estate fundamentals.



Source: William H. Frey analysis of U.S. decennial censuses 1920 - 2020

Population Growth Slows

In April, the Census Bureau released its initial findings. The headline — overall U.S. population expanded only 7.4% between 2010 and 2020. This represents the second-lowest decade-long recorded growth rate in American history, and it may partially explain why so many employers are scrambling for workers today. Only from 1930 to 1940, when many people lacked resources to form families because of the Great Depression, and the years following passage of the Immigration Act of 1924, saw softer population growth.

Though comparisons between the Great Depression and Great Recession are often overdone, there are some similarities. Millennials, many of whom are now in their 30s, came of age in large numbers during the global financial crisis. They graduated into a weak labor market. Then, a bit more than a decade later, as many had re-established their upward career trajectories, a global pandemic ripped through the economy. This is also the most educated generation in American history. Because of that, many wrestle with student debt.

What this translates into is slower family formation and fewer children. This, along with other economic and demographic factors, has slowed the growth of homeownership. That, in turn, slows migration into suburban communities, though the pandemic served to accelerate movement out of large cities. Ten years ago, the average age of first-time homebuyers was 30. It is now 33, in part because low inventories of unsold homes have helped drive home prices higher. Some of this is reflected in the decennial census data released to date, some of this is not.

Still, the April release offers statistical detail regarding some interesting trends. For instance, half a century ago, slightly less than half the nation's population resided either in the South or West. By 2020, the southern/western population share was up to 62%, and with cities like Austin, Nashville, Orlando, Tampa, Dallas, Denver, Boise and Phoenix continuing to boom, that proportion stands to expand going forward.

Meanwhile, deindustrialization has hammered the industrial Midwest, eroding its relative share of national economic activity. In 1920, the Northeast and Midwest represented 60% of America's population. That share had declined to 38% by last year. At the same time, the western share of the population rose from 9% to 24% over the course of a century. The rise of the West has been dramatic, and that continued during the previous decade.

Three states (Illinois, Mississippi and West Virginia) experienced negative growth over the past decade, the highest number of states to do so since the census began. By contrast, only one state registered negative population growth between 2000 and 2010 (Michigan), and no states lost population during the final decade of the 20th century.

Which states grew the fastest? Utah's population expanded by 18.4% over the past decade. Idaho expanded 17.3%. Already massively populated Texas won the bronze, registering 15.9% growth.

A lot has been made of the fact that California lost a congressional seat for the first time. Undoubtedly, much of that had to do with the pandemic and the exodus from some of the state's major cities during a period of social distancing mandates and large-scale churn in the labor market, as well as affordability issues for the working and middle classes. That said, many left California in previous years, even as others arrived to start some of the world's most influential technology companies. That has diffused the population in the West to cities as

New & Noteworthy

860,000 sq. ft.

Kilroy Realty Corporation has begun construction on the second phase of **Kilroy Oyster Point** in **South San Francisco**, which it calls the West Coast's largest community of **life science companies and research institutions**. Phase 2 will include approximately 860,000 square feet in three buildings with a total estimated investment of $940 million. The project will include a fitness facility, conference center, and multiple food and beverage options. It will also feature outdoor meeting areas, including a large amphitheater, to capitalize on the project's waterfront location.

819,964 sq. ft.

Stirling Capital Investments will build a new 819,964-square-foot **industrial facility** at the **Southern California Logistics Centre**, a 2,500-acre commercial and industrial complex in **Victorville, California**. The LEED-designed facility will serve as a future warehouse and distribution hub. It is expected to generate 100 jobs. Key features include energy-efficient design and construction, 40-foot clear height, as well as a smart temperature control system.

569,000 sq. ft.

Cadence McShane Construction recently completed **Carter Park** on behalf of the **Black Creek Group**. The **speculative industrial development** in **Dallas** incorporates three distribution/warehouse buildings totaling 250,000 square feet, 231,000 square feet and 88,000 square feet. Designed by Callaway Architecture, the three tilt-wall structures offer 32-foot ceilings, efficient loading dimensions, ample power, ESFR sprinklers and a total of 100 dock doors.

diverse as Reno and Tucson. More will be said on this going forward as the Census Bureau releases city-level data.

Adapting to New Norms

Perhaps nothing has captured the imagination of households as much as the possibility of remote work. Coming into the pandemic, the conventional wisdom was that employers could allow more of their staff to work from home, reducing real estate costs in the process. But those savings would come at the expense of productivity and responsiveness to clients.

There is a new conventional wisdom today, one that will fundamentally alter office market dynamics whether commercial brokers realize it or not. A recent working paper from the National Bureau of Economic Research titled "Why Working from Home Will Stick" indicates that work-from-home can translate into a 5% productivity boost. This understates potential productivity gains, however, since conventional productivity measures fail to capture the time savings and benefits of reduced commuting.

In June 2020, Cushman & Wakefield released a report stating that its proprietary Experience per SF tool indicated that workers were just as productive at home as they were in the office. They note that some companies are considering abandoning the traditional office and implementing a "hub and spoke" model. This would produce a "higher quantity of smaller offices in suburban locations."

Other behaviors catalyzed by the pandemic will also translate into greater population diffusion. Millennials are leaving for the suburbs in larger numbers, in part because of where they are in their life cycle, but also because they have been empowered to leave urban life behind by a growing volume of flexible working arrangements, including an ever-expanding gig economy. Online shopping continues to gobble market share from brick-and-mortar retail. At the same time, Netflix, Hulu, Amazon Prime, Disney+, HBO Max, esports and virtual reality gaming systems have created more opportunities to stay indoors during the evening, at least potentially diminishing the value of the leisure amenities that urban environments offer.

Importantly, many of these patterns preceded the pandemic. **Richard Florida**, an economist and urban studies theorist, notes that the pandemic likely accelerated migration away from principal cities that would have probably happened anyway. A recent Bloomberg article indicates that 84% of those who relocated over the past year moved to a place within their metropolitan area, frequently the suburbs.

Looking Ahead

The decline of cities has been predicted before. The advent of automobiles, occasional bouts of violence, fiscal crises, deindustrialization, the Internet and the great migration of baby boomers to the suburbs all threatened urban cores. Nonetheless, for much of the past decade, cities attracted millennials and young families in large numbers, helping to prompt an apartment construction boom. College graduates and other young people still tend to move to cities in large numbers, in part because the Internet isn't a substitute for active social lives.

The census data yet to come will provide additional insight into how and where people are choosing to live, supplying critical insight for developers and other commercial real estate stakeholders in the process. ■

Anirban Basu is the chair and CEO of the Sage Policy Group in Baltimore.

New & Noteworthy

460,000 sq. ft.

New York-based **R&B Realty Group** is developing **The Gateway at Wynwood** in **Miami**. The 13-story building will be completed in the second half of 2021. The Gateway at Wynwood will offer about 195,000 square feet of leasable **Class A office space** and nearly 25,900 square feet of **prime street-level retail space**. Designed by architect Kobi Karp, the environmentally responsible, 460,000-square-foot building features flexible floorplans, a private rooftop terrace and floor-to-ceiling windows.

299,520 sq. ft.

Duke Realty is developing a 299,520-square-foot **speculative industrial project** in **Bellwood, Illinois**. The facility is located close to O'Hare International Airport, major thoroughfares and rail lines. The facility will have 36-foot clear height, 30 dock doors and two drive-in doors, 85 trailer spaces and 345 parking spaces. It will be built to LEED certification standards. Additionally, Bellwood is within a 30-minute drive of an employee population of more than one million.

220,000 sq. ft.

New Jersey's **Newark Symphony Hall** (NSH), a historic African American **arts and entertainment venue**, is undergoing a five-year, three-phase, $50 million **renovation project** set to wrap on the venue's 100th birthday in 2025. The design, from architectural firm Clarke Caton Hintz, includes a new marquee and streetscape. NSH was built in 1925 and added to the National Register of Historic Places in 1977. In addition to restoring the building's façade, the renovation will reimagine the city block — adding bike lanes, improved curbing, a central island and transportation access.

clarkecatonhintz

Building for Retail Success in Hip Neighborhoods

In a trendy area of Los Angeles, a multi-functional design for a grocery store makes it stand out.

By Terry Todd

Carlos R. Hernandez

The Erewhon grocery store in the Silver Lake neighborhood of Los Angeles is in a newly built multi-level, mixed-use property.

City centers can offer some of the best locations for retail. High-density, walkable neighborhoods of upwardly mobile residents are fertile ground for successful shopping and dining. But the conditions that make them desirable can also make them difficult, especially for larger stores. Oddly configured sites can present obstacles — from entitlement, to design, to delivery servicing — that scare away institutional retail developers.

But for the more adventurous among them there are solutions, which can pay off handsomely.

Design firm RDC has conceived projects in unorthodox locations with its Erewhon market configurations. The high-end organic grocer and café is gaining popularity in the Los Angeles area at a rapid rate, and RDC's interior space plans allow access to difficult but valuable locations. These dense, urban neighborhoods have small, tight spaces, but they also offer heavy foot traffic and a young, upwardly mobile demographic that is crucial to Erewhon's recent bursts of success, which includes profiles in the New York Times, Vogue and Vanity Fair. Erewhon's sales volume per square foot is estimated to be far higher than most other grocers.

Because Erewhon seeks out spaces that other traditional grocery retailers would typically not consider, it is accustomed to multi-level buildings with structural, access, loading and space shape challenges. Full-service grocery stores would be difficult to put into these types of buildings as they are usually designed for regular retail or office uses. Additionally, their plumbing, HVAC, electrical and refrigeration systems are more complicated and require more space and paths above and below. The Erewhon and RDC collaboration centers around construction sites with peculiar shapes and unique spaces that lead to one-of-a-kind layouts and a boutique-style grocery experience.

A Challenging Location

RDC's design for Erewhon Silver Lake, the company's sixth L.A. location, is in a newly built multi-level, mixed-use property in the Silver Lake neighborhood east of Hollywood. It offers an exhibition kitchen, a pizza oven and prepared meals in addition to organic fine foods. The store has relatively large spaces for indoor and outdoor seating. This creates the feel of a restaurant and activates the property's wide sidewalks and a breezeway that separates the space into two areas, which is also unique for retail grocery.

"The Erewhon strategy is to excel in locations that may not have loading docks or acres of parking — traditional grocery store demands — but deliver a sophisticated, urban clientele," said RDC Job Captain **Elise Kunihiro**. "That's our expertise as well: solving space problems or adapting funky buildings to best render the company's identity."

"Brick-and-mortar retail tends to be a formulaic industry, but that is not us," said Erewhon Chief Development Officer **Yuval Chiprut**. "Attractive but difficult settings that most grocery stores avoid because of site constraints are often where we do best, in large part because of the efforts of RDC and Erewhon."

The 11,600-square-foot Silver Lake location, which opened in September

These dense, urban locations have small, tight spaces, but they also offer heavy foot traffic and a young, upwardly mobile demographic that is crucial to Erewhon's recent bursts of success, which includes profiles in the New York Times, Vogue and Vanity Fair.

2020 and took roughly 15 months to complete, presented some difficult design challenges for Erewhon and leasing/construction management firm Slated Projects. The lot housed two parking levels below the street grade, a retail level on-grade, and two residential levels above the retail level. The shell space that Erewhon leased was originally slated for up to five smaller tenant spaces. The slope along Santa Monica Boulevard, which fronts the property, created a stepped slab condition within the space. In the original multi-tenant plan, the slab was dealt with by placing a demising wall at the step. With Erewhon taking over the entire space, the 30-inch change in height was at the first third of the sales floor. The solution was to provide concrete support walls at 60 inches on center with structural foam inserts between the walls in order to bring the floor to a single level throughout.

New & Noteworthy

167,000 sq. ft.

BCB Development is constructing the first **speculative cold storage industrial building** in the Kansas City market. The 167,000-square-foot facility will be in the **Heartland Meadows Industrial Park** in **Liberty, Missouri**. Features will include a fully insulated building, enhanced roof loads, and specialized floor slabs to maintain refrigeration and freezer temperatures. In addition, the facility will be customizable to the needs of the original tenant and can be divisible for multiple tenants if needed.

108,000 sq. ft.

Stirling Properties is building **River Chase Self Storage** as part of the **River Chase mixed-use development** in **Covington, Louisiana**. The 108,000-square-foot storage facility will be located on 2.7 acres. It will include a three-story building with 594 climate-controlled units and three non-climate-controlled single-storage buildings with 44 drive-up units ideal for boat and RV storage. The facility will also feature 24-hour security.

100,000 sq. ft.

Anchor Health Properties and **The MetroHealth System**, a non-profit public health care system in Cleveland, Ohio, are developing a 100,000-square-foot, 110-bed **Behavioral Health Inpatient Hospital** in **Cleveland Heights.** The three-story addition to the medical center at Severance Circle is expected to serve up to 5,000 patients per year and will include a psychiatric urgent care center and a unit for patients requiring specialized care. Construction should finish in 2022.

The market required the 11,600 square feet in its entirety. However, the contiguous spaces available amounted to only 9,600 square feet, so an additional tenant space across the breezeway from the market was used for offices, a produce prep area, public restrooms and indoor dining.

Regulatory hurdles arose for RDC during the permit process. Roughly two-thirds of the floor slab was a double slab condition, with 30 inches between the finished slab and the structural slab below. Building codes require plumbing traps inside the store for floor drains and floor sinks to be within 24 inches of the tailpiece of the plumbing equipment. With the

The 11,600-square-foot Silver Lake location, which opened in September 2020 and took roughly 15 months to complete, presented some difficult design challenges for Erewhon and leasing/construction management firm Slated Projects.

30-inch space between slabs, the condition was non-compliant. To address the issue, the development team negotiated with the city of Los Angeles. It ultimately allowed the installation of electronic trap primers, which will automatically fill any pipes that are detected to have a low water level.

Deliveries were also a challenge as there was no traditional loading dock for trucks. The city granted a 70-foot loading zone along Santa Monica Boulevard, and a scissor lift was provided at the sidewalk level, with a dock door facing the street. Trucks were off-loaded onto the sidewalk, wheeled over to the scissor lift and raised up to the market level.

Additionally, Erewhon required a dedicated standard passenger elevator for its space. A new elevator was added to the existing building, which presented some structural issues. An 8-foot-by-10-foot opening in the existing street-level slab and two parking-level slabs below were required. In addition, the building sits on a 24-inch mat slab foundation, which had to be opened up for the elevator pit.

Surprises and Innovations

The biggest surprise for the design team came during construction. The building owner provided a drone image of the existing floor slab above the market prior to the new one being poured. It revealed dozens of electrical conduits entombed in the slab. As-built plans indicated a different routing than what was shown in the aerial image. The conduits were located where several large penetrations were required for an exhaust fan and air ducts. Further complicating the situation, X-ray scans were inconclusive in finding the exact locations within the slab.

A second scan team that specialized in locating electrical conduits was

Deliveries were also a challenge as there was no traditional loading dock for trucks.

brought in. It used ground-penetrating radar and was able to accurately locate the conduits and mark them in the slab. RDC found just enough open space around the conduits to make the penetrations without cutting the conduits. Although the conduits were clearly marked by the scanning crew, the building power was shut down for periods when saw-cutting was taking place to avoid accidentally slicing into live conductors.

RDC includes innovative systems and construction processes in its Erewhon designs. At the Silver Lake store, the owners and designers incorporated an undulating brick pattern as an interior cladding material at check-out and food-prep counters. A custom modular brick was developed with a local material supplier that provided a thin face and thick face in a single module with a false joint between the two faces. The modular brick kept the undulating pattern consistent and reduced the number of vertical joints by 50%, which also reduced labor accordingly.

Finally, the construction documents were created with Revit, a 3-D design software. The level below the market was scanned to accurately locate existing plumbing lines and other obstacles that could be problematic for the new plumbing lines installed by Erewhon. The 3-D scans were incorporated into the 3-D Revit model. ■

Terry Todd is an associate principal with RDC.

New & Noteworthy

94,000 sq. ft.

The Community Corporation of Santa Monica is developing **Las Flores Santa Monica**, a 73-unit, 94,000-square-foot **affordable housing community** in **Santa Monica, California**. Las Flores Santa Monica will offer 35 one-, 19 two- and 19 three-bedroom floorplans over a below-grade parking garage. Community amenities will include exterior decks and lounge areas, a playground, community laundry, community rooms, exterior walkways and landscaping.

30,000 sq. ft.

In May, **Ware Malcomb** finished renovations to software firm **LaunchDarkly's headquarters** in **Oakland, California**. The 30,000-square-foot project offers upgrades across two floors. Open-concept areas throughout the office promote employee engagement. The break room features a full kitchen with modern appliances and decor, with light colored wood, delicate accents, clean lines and exposed ceilings. The office has flexible spaces that allow for independent work, small huddles or large collaborative meetings.

5,800 sq. ft.

GTM Architects recently designed **Costa Dentistry's** new **office** in **Great Falls, Virginia**. The space features a sculptural custom reception desk and a custom logo wall. To create the "O" in the Costa logo, two bendable LED fixtures are used to contrast against a black wall. Black metal separation panels with a gradation of open circles keep natural light flowing throughout the space and still provide the necessary privacy between dental bays. Staff rooms include a lab space, break room and private restroom. ■

Do you have a new and noteworthy project in the planning, design or construction stage that you'd like to share with fellow real estate professionals? Send a brief description and high-resolution rendering to developmentmagazine@naiop.org.

Three Ways Real Estate Owners Can Benefit from Parametric Insurance Coverage

These alternative policies can be used for specific risks such as hurricanes or other natural disasters.

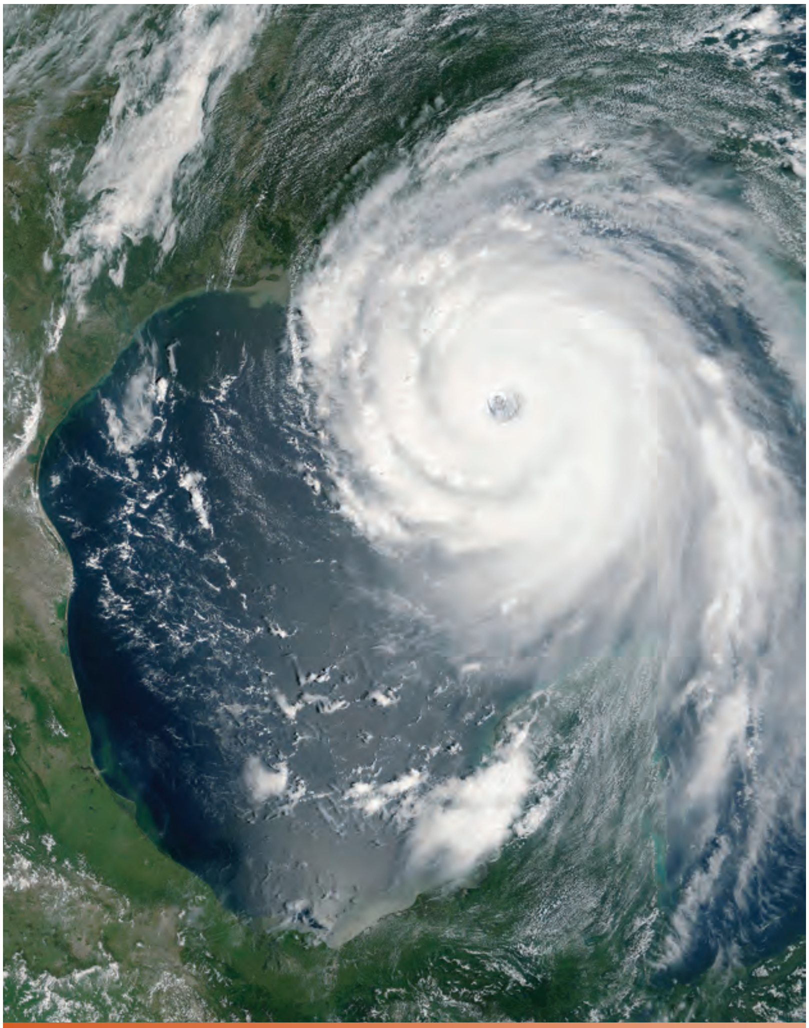
By Kimberly Gore

Owning a business or property in 2021 is anything but easy. With the effects of the COVID-19 pandemic still dictating daily operations and the rising number of insurance claims causing carriers to limit policies and boost coverage costs, owners are looking for alternative ways to reduce their risk, minimize costs and plan for the unexpected.

One option available to real estate owners and operators is parametric insurance, an alternative coverage solution that is growing in popularity. According to a January 2020 Insurance Journal article, parametric policies first appeared in the 1990s and were launched by commodities traders and energy companies. Today, they are used to insure a wide range of industries in addition to commercial real estate, including agriculture and transportation.

Two key elements differentiate parametric coverage from traditional property insurance.

According to a January 2020 Insurance Journal article, parametric policies first appeared in the 1990s and were launched by commodities traders and energy companies.



Getty Images/Stocktrek Images

Hurricane Katrina approaches the U.S. Gulf Coast in this satellite image from August 2005. The storm, which killed more than 1,800 people and caused more than $100 billion in property damage, is a prime example of the kind of catastrophic weather event that parametric insurance is designed to cover.

- **A triggering event.** Parametric policies are tailored for a specific peril that property owners might face. In the Midwest, this could be a tornado measuring EF3 or greater on the Enhanced Fujita scale, which estimates damage based on wind speed. In the Southeast, it could be a hurricane reaching Category 3 or higher or a certain wind-speed threshold. The occurrence of these perils within a defined geographic

Risks and Rewards

According to a June 2020 article from the National Association of Insurance Commissioners (NAIC), basis risk is a potential downside of parametric policies.

"The economic losses of the insured could differ by any margin from the amount of coverage, or the insured could have losses without the parameter being triggered," according to the article. "Accurately structuring and pricing the product requires a firm understanding of the exact exposures of the policyholder and carefully selecting the most appropriate parameter to fit those exposures." ■

area triggers a policy payout, regardless of the effect the weather event has on the covered property. Parametric policies are available across North America, including Canada.

- **A predetermined payout.** A parametric policy pays out in full when the named peril reaches an agreed-upon threshold, based on third-party metrics, usually a National Weather Service unit. The payout does not require claim filings or an adjuster to review the site. There is no standard parametric policy. Instead, coverage is written unique to each property in which purchasers set the limit, and therefore, the payout. Any type of weather event, including a flood, can be chosen as the triggering event. Non-weather triggers can be considered as long as they are pre-determined and measurable.

These two elements combine to create three potential benefits for real estate owners and operators.

Today, they are used to insure a wide range of industries in addition to commercial real estate, including agriculture and transportation.

Customization to each real estate portfolio's specific risks. Parametric insurance can be customized to each real estate portfolio's specific risks, allowing owners and operators to set the terms and conditions for payout.

A parametric program takes local, historical weather data from a third-party municipal source to determine the likelihood of a weather event, like a hurricane or earthquake that would damage or destroy the building. This weather data is based on the exact latitude and longitude of the hotel. From this data, a trigger threshold for coverage payout is determined and named in the policy.

For example, if a Miami hotel took out a $100,000 parametric policy to cover a category 4 or greater hurricane in its vicinity, the hotel would receive the full $100,000 if the catastrophic event occurs, regardless of the amount of damage to the hotel.

Real estate investors with several holdings can also customize their policies to cover multiple properties within a one- or two-mile radius. It is up to the business or property owner to set the optimal parameters for coverage.

Expedited payouts. The speed at which a claim payout is made can have an impact on policyholders, especially disaster victims. Many traditional insurance claims can take up to 30 days to be settled. Because there is no claims adjustment for a parametric policy, payout is expedited, allowing real estate owners and operators to meet the obligations of their loss immediately and continue operations or reopen quickly.

Parametric policies are tailored for a specific peril that property owners might face. In the Midwest, this could be a tornado measuring EF3 or greater of the Enhanced Fujita Scale, which estimates damage based on wind speed. In the Southeast, it could be a hurricane reaching Category 3 or higher or a certain wind-speed threshold.

Added flexibility to cover business interruption costs. Since parametric payouts are based on predetermined triggers and thresholds, not claim assessments, real estate owners with parametric coverage could receive a payout even if their property is not directly damaged by the event. These payouts could then be used to supplement any lost revenue caused by the surrounding damage.

For example, a rental property is miraculously undamaged by a local hurricane; however, tourism in the area is affected as the community recovers and rebuilds. The rental property's parametric payout would cover any forgone revenue as customers cancel reservations or business slows down. ■

Kimberly Gore is the chief marketing officer for Hub International's Hospitality Specialty Practice.

The Future of the Office is Healthier, More Engaging Spaces

Building owners will need to innovate to keep workers coming back.

By Trey Barrineau

As the world emerges from the COVID-19 pandemic, the success and popularity of remote work could force many companies to reduce their office footprints. That, in turn, will require building owners to find new ways to make their properties more relevant and valuable, particularly in urban cores.

A recent webinar for NAIOP members explored strategies that developers can pursue to draw workers back to the office.

A Focus on Health

According to **Ian Zapata**, design director for Gensler, the pandemic has put the health of existing buildings — and particularly their access to clean, fresh air — at the top of everyone's minds.

Mixed-use environments can also be a critical part of development strategies. Because the pandemic has normalized flexibility for work, building populations will fluctuate more than they used to. Therefore, owners will need to attract a wider range of tenants than they did in the past.

"It's no surprise that we're now much more conscious of things like the air we breathe and our surroundings, the impact of the built environment has on our health," he said during the webinar.

Zapata said that prior to the pandemic, the cost of anti-pathogen HVAC systems, environmental controls and indoor air quality monitoring would be difficult to justify in an office building, but that is changing.

"These investments can now be marketed as a building differentiator," he said.

The quality of outdoor space is also important, Zapata said, and it extends beyond just setting up outdoor meeting areas.

"We believe that buildings that have access to outdoor space will have a clear advantage in this new landscape," he said. "Spaces should be thoughtfully programmed or designed so they can be higher performing."

Mixed-use environments can also be a critical part of development strategies. Because the pandemic has normalized flexibility for work, building populations will fluctuate more than they used to. Therefore, owners will need to attract a wider range of tenants than they did in the past.

Zapata said flexibility will be a key feature for real estate going forward. That focus on flexibility can extend to a company's entire real estate portfolio. Zapata said the traditional paradigm of a certain type of tenant for the suburbs and a certain type of tenant for the central business district might be changing as companies take a broader view of where they distribute their real estate.

"Many companies are rethinking their real estate strategy, abandoning centralized operations in favor of a distributed model, which in turn allows workers to have more choice in where they live, where they raise their families and the length of their commutes," he said. "Having that flexibility by providing that choice for employees is one potential bright side to come out of the pandemic."

Noting the longstanding influence of hospitality on real estate, Zapata said building owners need to accelerate that trend in the aftermath of the pandemic as workers yearn to reconnect with people and places they haven't seen in months. And to attract a wider range of tenants than before, he recommends developers invest in multi-use spaces.

"That means being part of a broader community in an activated street scene," he said. "We took this for granted, but the pandemic reminded us that a big reason people go to the office is to interact with other people socially."

Personalized service and convenience offerings will also increase because people got used to the ability to work and take care of personal business at the same time. And finally, memorable, aesthetically pleasing place experiences will be another crucial factor that will draw workers back to offices, Zapata said.

"This notion of a generic office building that is measured purely and solely on its efficiency of space per square

Rendering courtesy of Gensler

Gensler's morphable office concept for a hypothetical site in Baltimore. It features movable walls that can open on two sides to allow fresh air in, as well as an exterior walking path on each upper floor.

feet per person, I think it's less relevant in an age where people need to be excited about coming into the office and making that choice to come into the office," he said.

The Morphable Office

Duncan Lyons, a design director with Gensler, described a new model for office development that the company is calling the morphable office. According to Lyons, the concept began as a research project in partnership with Arup and evolved into a design speculation for a site in Baltimore.

Instead of a site that maximizes density, the design concept sets the building back and creates a linear park along a street to the east of the project. The building would be constructed in a way that allows the public space to extend under it, with ground-floor programs that support the local community.

The morphable office space exists on the upper floors. Each floor has an offset core and a 200-yard exterior walking loop around the perimeter of the building. The south and east facades are movable walls that can slide open as the floor morphs from 30% to 50% open to create outdoor collaboration and theme space. It can flex from indoor to outdoor space depending on the weather conditions.

Residents share a rooftop terrace, and a vertical garden that climbs the side of the building to the roof extends the ground-floor linear park.

"You can see how much this space really feels connected to nature and to the city around it," Lyons said. "It has a really strong sense of place and a really strong sense of well-being for the office tenants."

In terms of energy efficiency, the design concept would use radiant flooring to heat and cool the space. (See related story, page 48.) It would also reduce embodied carbon by 15% by using reclaimed wood and carbon cure concrete, a technology that injects carbon dioxide into concrete to permanently embed it. Additionally, the building would feature photovoltaic panels on the roof to generate power, resulting in 50% less energy usage than a traditional office.

"But the real market differentiator is actually a whole new kind of office that allows tenants to sit, stand and work while moving through sheltered, tempered outdoor space, all while having access to fresh air while being able to connect to the community," Lyons said.

As far as costs, Lyons said contractors are conducting preliminary pricing on the research project, but he noted that it's basically a concrete structure — with a few differences.

"There's nothing unusual about it," he said. "There's a largely glass façade which is operable on two sides and closed on two sides, so there is a cost premium for façade operability, but we think it's not a significant premium."

Lyons said Gensler is rolling out this concept to its developer clients, and the firm is already designing projects in Washington, D.C., and Los Angeles that incorporate many of these features. ■

Trey Barrineau is the managing editor of publications for NAIOP.

Five Factors Affecting the Success of Cities

What serves as the foundation for a great city?

For its most recent City Pulse Survey, Gensler surveyed 5,000 urbanites in 10 cities around the world in early 2021 to measure these residents' attitudes as the world approached one year of living with COVID-19 and mass vaccinations began in many countries. The findings were shared by **Sofia Song**, global cities lead with Gensler, during a recent webinar for NAIOP members.

The survey results showed that 28% of the respondents were likely to move out of their city soon, as urban living satisfaction continues to decline. Those who can work remotely were 11% more likely to consider moving than those who do not have the opportunity to work remotely.

The increasingly hybrid/remote global workforce does not signal the end of cities or central business districts, however. Regardless of the size of their current city, over two-thirds of survey respondents who were considering moving said they wanted to relocate to a smaller, less populated location — including smaller cities, suburbs or rural areas. (See related stories, pages 66 and 74.)

Gensler identified five factors (both positive and negative) that influence people's decision to stay in or leave their current city.

Three factors motivating people to stay in cities are:

Great neighborhood design. "People who feel that their neighborhoods are beautiful, authentic, safe, clean, and pedestrian-friendly are more likely to want to stay in their current cities."

Employment opportunities. "When it came to employment opportunities, we found that people need both job options and opportunities for career advancement."

Transportation options. "Cities should take a multimodal approach to foster a seamless mass transit experience — one that not only accommodates cars but also integrates micro-mobility options."

Two factors that drive people to leave big cities:

"Big city" problems. "People who feel that their cities are too big, too noisy, too crowded, have too much traffic, and are losing their cultural heritage are more likely to consider relocating. Over half of urban residents feel that their cities are too crowded, which could become a key concern after the population crowdedness issues raised by the pandemic."

Affordability. "People who are living paycheck to paycheck, who feel that their neighborhoods are becoming increasingly unaffordable, and who feel the anxiety from these stressors, are much more likely to consider leaving. This is especially true in rising cities like Atlanta, Austin, and Denver, where they experienced an influx of new city residents." ■

By **Brielle Scott**, senior communications manager at NAIOP.

Today's Steps for Tomorrow's Net Zero

Passive-building strategies can get new construction to net zero energy consumption.

By Rosa Folla, Project Manager, Tiscareno Associates

According to the U.S. Energy Information Agency, commercial and residential buildings accounted for 29% of total U.S. energy consumption in 2020. With the growing emphasis on climate change, many national, state and local jurisdictions have set ambitious goals to decrease carbon emissions.

One such goal, upheld by initiatives such as the Paris Climate Agreement, is to get to net zero carbon emissions across the building industry. Net zero carbon emissions means the building consumes the least amount of energy possible while also producing enough energy from sustainable sources to compensate for the energy it actually uses.

Reducing a building's carbon emissions is most easily done by managing its heating and cooling to achieve net zero energy consumption. Passive-building construction and certification (also called passive-house construction) is specifically designed to drastically reduce energy usage and help buildings reach net zero energy consumption.

Passive-building construction and certification (also called passive-house construction) is specifically designed to drastically reduce energy usage and help buildings reach net zero energy consumption.

Born in Europe

Passive-building principles were originally developed in Europe in the 1980s to enhance the energy efficiency of single-family homes. After decades of experimentation and improved modeling tools, the principles are now being applied to larger commercial buildings due to the economies of scale.

According to the Passive House Institute US (PHIUS), there are nearly 200 PHIUS-certified and pre-certified commercial and multifamily projects either finished, under construction or in the planning stages in the U.S.

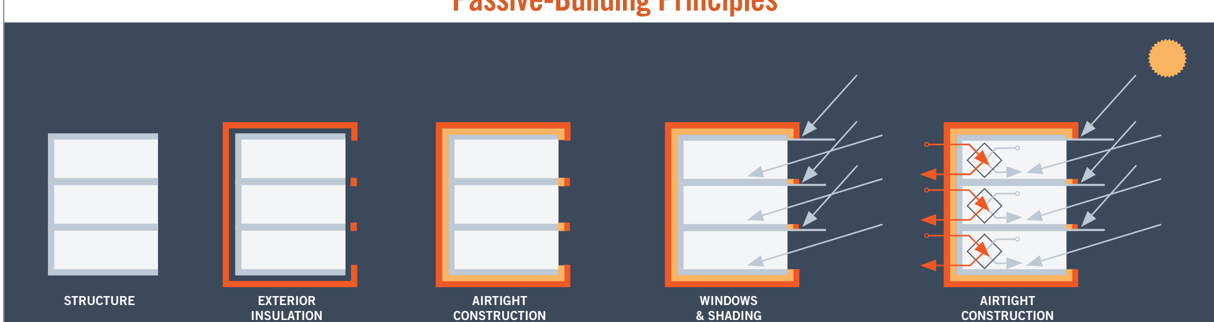
A large passive-building structure can achieve certification more easily than a smaller one. This seems counter-intuitive, but it explains why passive building can scale up to commercial construction. The smaller surface-to-volume ratio of larger buildings makes insulating the space more cost-efficient, and the larger number of people occupying the building can actually serve as space heaters. This can add up in office, commercial and industrial applications.

Certification for passive-building structures is performance-based — granted only after a building has operated for a year and proven its ability to heat and cool with net zero energy use. However, passive-building design does not have to be an all-or-nothing proposition. These strategies can be immediately applied to significantly reduce energy consumption.

Net Zero and Passive Building

Net zero energy consumption focuses on designing buildings to minimize

Passive-Building Principles



Source: Tiscareno Associates

Passive-building structures feature continuous insulation across the envelope, high-performance windows and strong ventilation.

Arnold Imaging via PR Newswire

At 276 units, Second + Delaware, in Kansas City, Missouri, claimed to be the largest passive-building multifamily project in the world when it opened in 2020.

the amount of energy they require each year from the grid and replace the energy they do use by producing equivalent energy from sustainable sources, such as solar panels.

For instance, if a building requires an average of half a million kilowatt hours of electricity a year to run, it would need enough solar panels installed to return half a million kilowatts to the grid that same year — a net of zero energy used. Obviously, the more energy-efficient the building, the less energy needs to come from the grid, and the fewer solar panels are needed to compensate for the amount consumed.

And that is where passive-building strategies are helpful. This approach rigorously applies five building-science principles to make buildings more energy efficient and less costly in dollars and resources to heat and cool throughout their lifecycle:

- Continuous insulation throughout the entire envelope to mitigate thermal bridges, or places where heat can easily move from the interior to the exterior.
- An airtight envelope, preventing infiltration of outside air and loss of conditioned air.
- High-performance (double- or triple-paned) windows, along with shades, to exploit the sun's energy for heating in colder seasons and minimize overheating in warmer seasons.
- Heat and moisture-recovery fresh air ventilation.
- Minimal space conditioning systems.

Pluses, Minuses of Passive-Building Strategies

According to PHIUS, the initial costs of passive-building strategies are, on average, 5% to 10% higher than those of traditional construction. However, they can yield potential energy savings of more than 90% year after year. This can outweigh the short-term financial gains

Passive-building principles were originally developed in Europe in the 1980s to enhance the energy efficiency of single-family homes. After decades of experimentation and improved modeling tools, the principles are now being applied to larger commercial buildings due to the economies of scale.

of designing a project solely to reduce construction costs, which often leads to much higher energy bills over time.

Beyond energy efficiency, passive-building construction can deliver other benefits such as:

Durability. A building's inherent airtightness prevents air and water infiltration, avoiding humidity and helping materials last longer.

High air quality. Continuous mechanical ventilation of fresh filtered air provides superb indoor air quality, which is especially important when external air quality is poor because of pollution.

> **Passive-building strategies must be integrated into the project from the beginning. Energy modeling is required at various stages to calculate the expected energy consumption by month, season and year, and validate target reductions.**

Occupant comfort. Superinsulation and airtight construction provide unmatched comfort.

While passive-building construction has many upsides, there are some important caveats to keep in mind as well. For instance, while there are some retrofit projects that use passive-building techniques, the best results are generally achieved with new construction. Additionally, passive-building construction costs can be significantly higher in areas with extreme temperatures.

Things to Consider

Passive-building strategies must be

integrated into the project from the beginning. Energy modeling is required at various stages to calculate the expected energy consumption by month, season and year, and validate target reductions. Each design decision — from building orientation to window size and placement, to the amount of roof space allotted for solar panels — must be viewed in light of its effect on the project's goals, budget and net zero objectives.

Successful implementation requires a team experienced in energy codes, sustainability practices and materials selection. Just as a LEED consultant is needed for LEED certification, seek out a team that has a sustainability consultant who is familiar with passive-building strategies.

It is also important to work with an experienced contractor who has a good knowledge of the building envelope and can address thermal bridging and air tightness. Bringing the contractor in early to collaborate with the design team is critical to help the architect achieve cost-effective, energy-efficient solutions and avoid any constructability issues that could stall the project on site.

Plan for Net Zero

There are many viable technical pathways to deliver low-energy and net zero energy buildings for 2030 and beyond. As a construction standard designed to help minimize the load that renewable energy sources must provide during a building's lifetime, passive building offers a clearly defined path to ultra-low energy performance using a proven technical approach.

Passive-building strategies can help achieve sustainability goals in all building types. ■

Rosa Folla has been an architect in Italy, Los Angeles and Seattle for more than 20 years, working on institutional, commercial and residential buildings with an emphasis on adaptive reuse. She is the former chair of AIA Seattle COTE, a Certified Passive House Consultant and a member of Passive House Institute US.

CEO on Leadership: Mike Lafitte

The leader of Trammell Crow Company (TCC) and global CEO for CBRE's Real Estate Investments (REI) business segment talks about taking the leadership reins at the height of the COVID-19 pandemic and much more.

By Ron Derven


Mike Lafitte

"We recognize that even with the crisis, we have a big business to run, employees and tenants to support, and projects to complete on behalf of our investors. We did all of that, and I am so proud of the way our leadership team and company responded to this crisis."

— Mike Lafitte, global CEO, CBRE Real Estate Investments; CEO, Trammell Crow Company

Development: *How did you get into commercial real estate?*

Mike Lafitte: My father was a banker and I thought I would become a banker — that's after considering becoming an orthodontist. While studying for my MBA at Southern Methodist University (SMU) in 1983, however, I got an internship with Lincoln Properties and fell in love with the business. I joined Lincoln after graduation. After that, I held production, leadership and development roles with Bear Stearns and PREMISYS Real Estate Services (a Prudential affiliate). I joined TCC in 1997 and in 2006, CBRE acquired Trammell Crow Company.

Development: *You have said that becoming CEO of Trammell Crow Company was the honor of your life. Could you tell us why?*

Lafitte: I was born and raised in Dallas. You cannot be a "Dallasite" without having great affection and regard for the Trammell Crow name — both the man and the company, including its traditions, people and culture. When I joined the company in the 1990s, I never dreamed that one day I would serve as the CEO.

Development: *What prepared you to take over leadership of a real estate industry juggernaut like TCC during a pandemic?*

Lafitte: It's a team sport. When you move into a role like I did here, you rely on the leadership team that you have in place. People in leadership positions at CBRE and TCC often move around to different jobs over time to be cross-trained and broaden their experiences. COVID-19 was not the first major disruption that our leadership team has faced, which included the commercial real estate collapse in Texas in the 1980s, the dot-com bust, the financial crisis and numerous market cycles. We prepare for these moments. We anticipate disruption. However, we never expected a pandemic.

We recognize that even with the crisis, we have a big business to run, employees and tenants to support, and projects to complete on behalf of our investors. We did all of that, and I am so proud of the way our leadership team and company responded to this crisis.

Development: *What were the steps you took to ensure the safety of tenants, building visitors and employees while moving the company forward?*

Lafitte: Our first priority was the safety, health and wellness of our people. We had a significant amount of in-process development around the world that for the most part did not stop. We put all the safety protocols in place at job sites and buildings — but our work continued. We focused on keeping the trains running. Our frontline workers are true heroes. They got the buildings built and kept operating our projects. Our people performed very well as we came through the pandemic.

Development: *What do you look for when you hire or promote senior people?*

Lafitte: We promote the vast number of people from within, but we will go outside to hire talent when neces-

continued on page 34

"I am quite bullish about the next few years. Office, hospitality and retail have been disrupted, but we are seeing them start to come back. The office market is massive, and there is a strong commitment to the workplace from large occupiers around the world."

— Mike Lafitte, global CEO, CBRE Real Estate Investments; CEO, Trammell Crow Company

continued from page 32

sary. Character is critical to us when it comes to our senior team along with experience, work ethic and a collaborative spirit. Another important element is diversity. We have a very intentional focus around diversity, equity and inclusion at TCC and CBRE. Succession planning is also something we take very seriously for our senior talent. We equip our rising leaders for their career development.

Development: *What does leadership mean to you?*

Lafitte: The leadership team must create the vision and the aspiration for where the business wants to go. Out of the vision and aspiration comes the strategy, which leads to an execution plan. From there, it leads to all the people decisions that we make. As **Jim Collins** wrote in his book "Good to Great," you must make sure you have the right people on the bus and that they are sitting in the right seats. Commercial real estate is a constantly changing, moving business. Leadership is not about the leader as a person, it is about the team and results.

Development: *What is your primary role as CEO of Trammell Crow today?*

Lafitte: I work closely with our leadership team across the business units. We have an active investment committee, which I am involved with, where we are engaged in managing risk, deploying capital and making investment decisions. My role includes a balance of internal and external responsibilities, and I enjoy interacting with our people as well as with our capital partners and other stakeholders.

Development: *In your roles at CBRE and in your position at TCC, could you tell us how you handle internal conflicts or mistakes should they occur?*

Lafitte: Mistakes and conflicts will happen, and what is important is how you manage it. We hit issues head-on. Ultimately, you need to live out your core values. At TCC, we have a set of core values we call R-I-S-E: Respect, Integrity, Service and Excellence. We manage the firm with those core values at the forefront. When we deal with internal issues, it is important that we are honest, transparent and decisive. It is important for leaders to listen, but it is also important for leaders to act.

Development: *What is your outlook for commercial real estate over the next three to five years?*

Lafitte: I am quite bullish about the next few years. Office, hospitality and retail have been disrupted, but we are seeing them start to come back. The office market is massive, and there is a strong commitment to the workplace from large occupiers around the world. Will it change? Yes. Will people do more with less space? Yes. Is it going away? Absolutely not. For industrial and multifamily, the demographics are extremely strong, and these two sectors should continue to be in favor and perform very well.

Development: *Over the course of your career in real estate, what is the best advice you have been given?*

continued on page 36

continued from page 34

Lafitte: The importance of integrity, the importance of hard work and the power of focus.

Development: *What advice would you give someone entering the commercial real estate business today?*

Lafitte: Build your network. Start out with a great firm. Absorb as much as you can, but be patient. Your career is the long game, the marathon, not the 100-yard dash. Be a student of the industry. Learn from what you see that goes right, but more importantly, learn from what goes wrong.

In the early years of my career in real estate in the late 1980s, the world melted down. I saw companies going broke right and left. I saw banks going under. I tried to learn from what I observed about the markets, the failures and the actions that resulted from the disruption. If you can learn from the mistakes of others, then you don't have to make them yourself.

Development: *What crucial lessons have you learned in your career in real estate?*

Lafitte: For real estate or anything else, cycles will come and go. You have to figure out how to navigate those cycles. You also need to take calculated risks, understanding that you will not always get it right. You've got to get out there into your "uncomfortable zone," but at the same time, you've got to manage risk. Finally, staying true to core values and a strong set of principles is a must.

Development: *Leading a company like Trammell Crow while maintaining your role at CBRE as global leader has its stresses. What are your favorite ways to relax on your time off?*

Lafitte: I enjoy working, and I love my job and the people that I am with. But outside of work, what is important to me is faith, family and community. I am blessed with a growing family with adult kids and a couple of grandkids running around. I like being in the outdoors — mostly biking, golf or fishing. I have lived in Dallas all my life. I have many friends here, and I am fortunate to be part of a great community and industry. ■

Ron Derven is a contributing editor for Development magazine.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Five Solutions for Building Office Interiors Amid Supply Shortages, Price Volatility

Soaring costs for construction materials are forcing developers to get creative.

By Andy Halik

With knowledge workers craving the social component of the workplace after months away from the office because of the COVID-19 pandemic, many companies across the country are starting to reopen their buildings to employees. Some took the opportunity to renovate or update their workspaces during the lockdown periods of the pandemic, and others are planning significant design changes to prepare for the next era of the office.

Meanwhile, the challenges of renovating or building out office interiors — or constructing ground-up office buildings — are only compounding as the desire to move forward on office projects butts up against unpredictable economic factors. Facing volatile materials prices, a tightening labor market, soaring demand and supply chain inefficiencies, real estate developers, owners, tenants and their builders must take action to mitigate the financial impacts and keep projects on track.

It's no secret that building component costs have risen at an unprecedented rate in the past year. (See related article, page 12.) Such extreme material price volatility has intensified over the pandemic and spread to other components, all while severe shortages and supply chain bottlenecks have lengthened timelines for production and delivery. These challenges are impacting both ground-up and renovation projects across all property types, but those looking to update office spaces for their returning workforce are realizing the effects of higher prices and scarce supplies.

Getty Images

The rising cost of construction materials is forcing landlords to find strategies that can deliver office buildouts economically.

How can developers, owners and builders overcome these economic challenges and mitigate the risk to their project's bottom line? Consider the following five solutions:

Blend the team early. Time is money. To ramp up faster, combine teams sooner rather than later. Early collaboration between architect and contractor — in a design-build or design-assist delivery method — will accelerate schedules and prevent expensive, time-intensive redesign. For example, making smart design choices in terms of where the major vertical circulation (i.e., stairs and elevators) is placed in a ground-up project can save a lot of money.

Stronger, earlier collaboration on these elements avoids do-overs later, but challenges are bound to happen. For example, on a recent office build-out for a major financial institution in Chicago, Skender's value engineering processes in the preconstruction phase led to a 20% budget reduction from the initial design.

Build Lean. Lean construction, a methodology focused on efficiency and waste reduction, provides greater stability, reliability, efficiency and flexibility. A Lean builder can navigate market conditions and material shortages and will maximize ROI by conducting ongoing research, monitoring economic trends and providing counsel on lifetime costs, environmental impact, inflation and more. Builders who specialize in Lean excel at planning and are trained to deliver optimally efficient projects, reducing waste during all stages of construction.

Dodge Data & Analytics research has shown that "high Lean-intensity projects" were three times more likely

continued on page 40


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Building flexibility into the workplace and creating space for employees to socialize and collaborate will be imperative for the next phase of re-entry.

continued from page 38

to finish ahead of schedule and two times more likely to come in under budget. Dodge found that 61% of projects that did not implement Lean methods finished behind schedule, and 49% came in over budget.

Expand the material mix. Evaluate and analyze substitute materials and systems to expand the menu of choices for all components of a building, including foundations, superstructures, framing, enclosures, systems, interior building materials and more. Working with the contractor and strategic trade partners early in the design phase can ensure that extending the list of acceptable substitutes does not compromise on safety, quality, durability or functionality.

Every project has options. For example, during preconstruction on a recent build-out, Skender worked with subcontractors to determine the higher-cost elements and how to build them with materials that met the design intent while staying within the budget.

Specifically, pre-cast concrete, ready-mix concrete and different wood species have become useful substitutes. On another recent project, the original plans called for Douglas fir, but the suppliers couldn't guarantee delivery in time, so the team determined that spruce pine fir would be a suitable alternate to maintain the construction schedule.

Procure materials earlier. Material prices are fluctuating furiously, causing daily uncertainty about how much a product could cost down the line. Working from real, data-driven expectations can aid in making material procurement decisions earlier. Buying materials earlier will typically result in cost savings and greater decision-making power about other factors later

continued on page 42

continued from page 40

in the project. It mitigates unknown exposure to shortages and can ensure access to materials when needed.

Establish strategic budget reserves and a reinvestment plan. Try to carry extra contingency and avoid building to the maximum budget upfront. Build a strategic buffer and, more importantly, a schedule of milestones for reassessing risk at the last responsible moment and gradually releasing reserved funds back into the project as risk diminishes. For instance, if the project budget is $15 million, target a spend of $14.5 million and then systematically release the balance if economic conditions improve. Converting surplus contingency adds real value and allows for adding project wish-list items such as upgraded finish materials, appliances, technology, landscaping and more.

These challenges are impacting both ground-up and renovation projects across all property types, but those looking to update office spaces for their returning workforce are realizing the effects of higher prices and scarce supplies.

The economy is uncertain, but the construction risks are tolerable and quantifiable, and the same old workplace won't cut it going forward. Building flexibility into the workplace and creating space for employees to socialize and collaborate will be imperative for the next phase of re-entry. Experienced builders know how to manage office interior build-out projects throughout increased volatility. A combination of these solutions — early team collaboration, Lean best practices, material flexibility and agility, and strategic budget reserves with reinvestment milestones — will help mitigate risky economic variables and ensure the reliable, on-time, on-budget delivery of an office project. ■

Andy Halik is vice president at Chicago-based Skender, a full-service building contractor.

Creating a Solution for Essential-Worker Housing

A program in California seeks to address affordability for the "missing middle."

By Sean Rawson and John Drachman

California has failed its essential workers.

Across the state, nurses, teachers, librarians, public safety employees, first responders and civil servants are priced out of the very communities they serve. These individuals and families earn too much to qualify for traditional affordable housing but not enough to afford escalating market rate rents in the neighborhoods where they work.

Called the "missing middle," these essential-worker households make between 80% to 120% of the area median income (AMI). Unlike traditional affordable housing income levels that have various financing sources such as federal and state tax credits to create "low" and "very low" income housing, the middle-income level does not.

It is important for people to have the option to live near where they work, particularly those workers who are most essential to local economies and communities. When people can afford to live closer to their jobs, entire communities reap the benefits. Commute times and traffic congestion ease, and economies are strengthened by helping employers attract and retain the essential workers they need.

Waterford Property Company

The Oceanaire in Long Beach, California, is 216-unit luxury apartment community that provides lower rents to middle-income tenants via a new program from the California State Communities Development Authority.

It is important for people to have the option to live near where they work, particularly those workers who are most essential to local economies and communities. When people can afford to live closer to their jobs, entire communities reap the benefits.

What's the Solution?

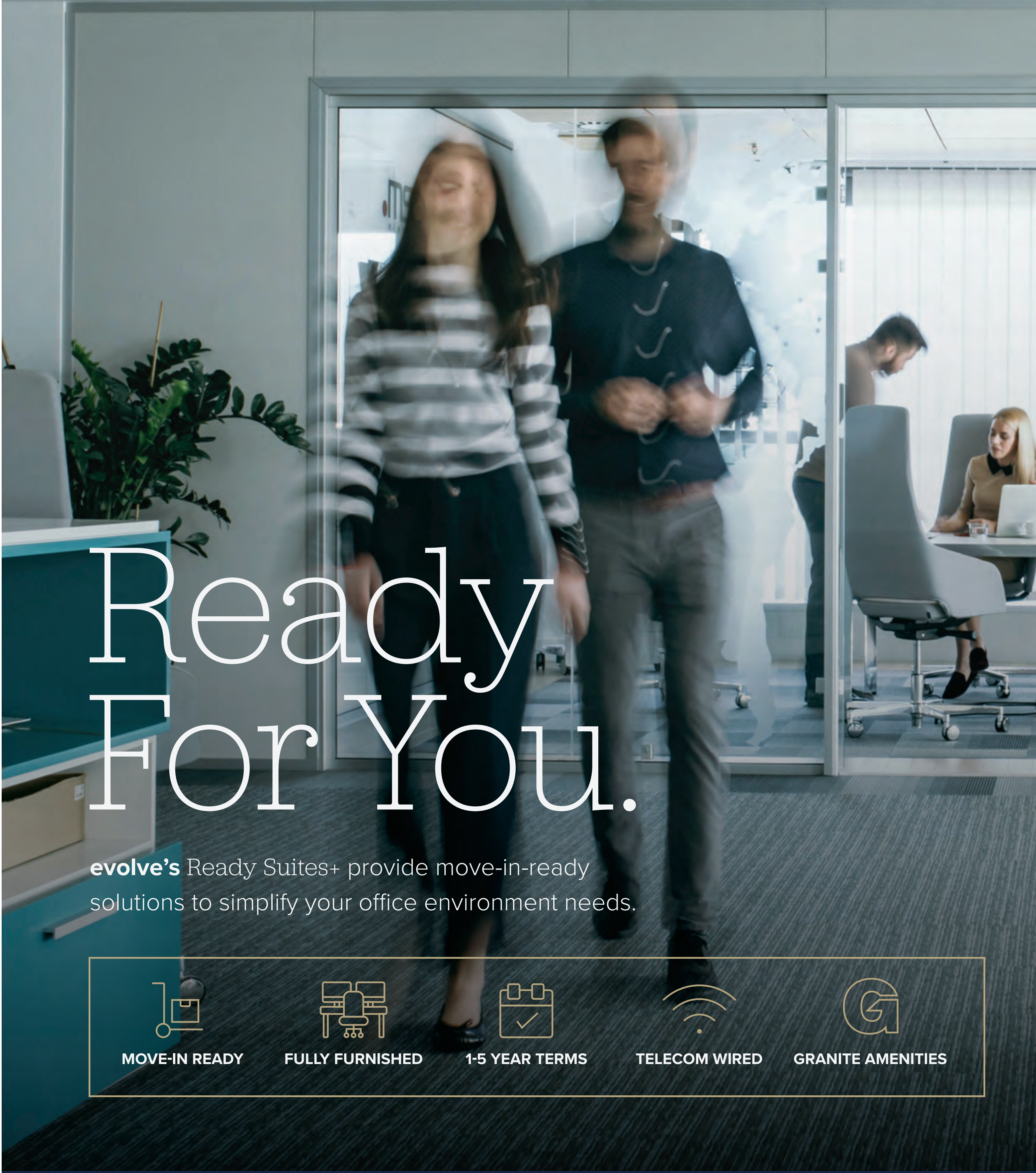
At the end of 2020, the California State Communities Development Authority (CSCDA) launched an innovative tool for the timely financing of community-based public benefits projects. Using tax-exempt bond financing, CSCDA acquires multifamily projects without the use of public subsidies and imposes moderate income regulatory agreements. By executing a public benefits agreement, cities and other local taxing agencies are entitled to all the financial upside in the asset, which is financially beneficial for the city and county as well as the local school district. The program benefits residents by providing reduced rents that can be locked in for 30 years with a maximum annual increase of just 4%.

Several California cities have already decided to support CSCDA's innovative new program, and since the start of the year, Waterford Property Company has partnered with CSCDA to acquire four luxury multifamily communities in California to convert to middle-income housing.

One prime example is Oceanaire, a 216-unit luxury apartment community. It features Pacific Ocean views, clubrooms and resident lounges, and an on-site coworking lounge. Residents now gain housing they can afford without sacrificing residential development quality.

Based on current occupancy, this program, for example, can benefit approximately 40% of existing Oceanaire

continued on page 46



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continued from page 44
residents, who will see average rent decreases of approximately 10%.

In addition to providing decreased rents for tenants, CSCDA's financing structure will ensure that Oceanaire remains a luxury rental community due to significant financial reserves that are part of the bond issuance. Waterford is the project administrator acting on behalf of the bond holders to execute the business plan.

How It Works

To understand how this program works in local cities, consider its application in Long Beach, California. The city has close to 5,000 moderate-income households according to a national market advisory firm. Looking at the city's regional housing needs assessment (RHNA) — which is a representation of future housing needs for all income levels — for the period between 2014 and 2021, Long Beach's moderate-income housing production goal was 1,170 units. To date, the city has produced 37 units. For the period between 2022 and 2028, Long Beach has a RHNA goal of 4,149 moderate income units. Based on these numbers, the city is already projected to be behind its ability to house its middle-income families and individuals.

The program benefits residents by providing reduced rents that can be locked in for 30 years with a maximum annual increase of just 4%.

Waterford Property Company

At the Oceanaire in Long Beach, California, about 40% of existing tenants will see their rent drop by 10% under the new program.

While the conversion of Oceanaire to middle-income housing is just the beginning, it's an important opportunity for Long Beach to meet its RHNA requirements.

While in the short term Long Beach will relinquish its share of property tax revenue from this property, the long-term opportunity is for the city to sell the property at a 30-year point and benefit from sales proceeds that will provide Long Beach with a significant return on its investment.

In total over 30 years, Long Beach will forego $10.8 million in property taxes but will be the beneficiary of all the long-term equity in the asset, which is projected to be approximately $155 million. That money will go directly to the city. This will create an approximate six-times return on the city's investment, which will be in addition to the millions in rent savings for the residents.

While the CSCDA middle-income program is relatively new, it has the potential to make a real impact on housing affordability for cities across the state and can help turn around a crisis that is potentially holding back full economic recovery for everyone in California. ■

Based on current occupancy, this program, for example, can benefit approximately 40% of existing Oceanaire residents, who will see average rent decreases of approximately 10%.

Sean Rawson and **John Drachman** are co-founders of Waterford Property Company, a Southern California-based real estate firm that specializes in the acquisition and development of multifamily and commercial properties.


EverWest

Rising to the Occasion: How Radiant Slabs Reduce Carbon and Improve Occupant Experience

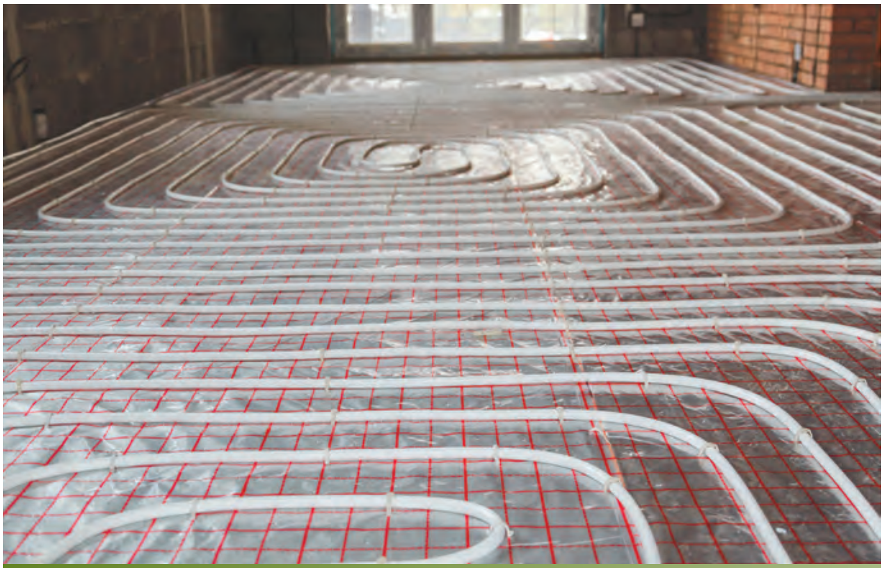
They're a green alternative to forced-air systems for heating and cooling occupied space.

By Alice Devine

Silicon Valley's Fortinet, a cyber security company, and San Francisco's The Exploratorium museum share a love of science as well as an underground secret: thermal foundations that heat and cool their buildings. These concrete slabs with embedded pipes create a sustainable and comfortable environment.

Modern radiant slabs have shed the copper piping that was popular in the 1970s but was prone to leaks for high-performance, flexible plastic pipes. Moreover, micro-zones create granular, customized temperature regulation for building occupants.

According to the nonprofit Architecture2030, approximately 11% of carbon emissions result from commercial building materials and construction, while another 28% of emissions can be attributed to building operations. Mechanical, electrical and plumbing (MEP) systems account for most of those emissions. By using concrete as a thermal battery, radiant slabs provide a highly efficient means of cooling and heating buildings that reduces carbon and offers a better occupant experience.



Getty Images

Radiant slabs circulate water or electrical heating elements through flexible pipes embedded into the concrete floor.

Human Biology

Approximately 50% of human heat is garnered through radiance. **Noah Zallen**, principal and radiant heating and cooling practice lead at the engineering firm Integral Group, draws an analogy to the common experience of climbing into a car on a hot day. Vents may blast air conditioning onto the face, yet the body remains uncomfortably warm because the vehicle's dashboard and interior still transmit heat.

Translated to real estate, traditional MEP practice focuses on achieving space temperature in the 68- to 74-degree range. Typical offices contain ceiling boxes that blast cool or hot air onto employees, accompanied by noise. Any office occupant knows the all-too-common thermostat wars waged among individuals. Instead, Zallen references a changed mindset that prioritizes cooling (or heating) the body, rather than the space. To that end, radiant slabs heat underfoot or cool overhead with silent fans that work in conjunction with the slab.

Design and Construction

Ancient rammed-earth and adobe structures demonstrate that humans have long relied on building mass to heat or cool structures, as well as to maintain consistent temperature over time. Such construction illustrates a physics principle — the transfer of heat to and from objects.

In radiant slab designs, flexible pipes circulate water or electrical heating elements within the concrete floor, allowing the thermal mass to evenly distribute heat. The economical, cross-linked polyethylene pipe used by Clark Pacific, a California-based firm that specializes in prefabricated construction, uses approximately 20% of the carbon that traditional copper piping requires. As Zallen notes, "in general, carbon is related to the weight of unrecycled metal."

The lack of metal fan coils and copper piping traditionally seen in MEP systems translates into thinner concrete slabs, less cement and less concrete because of embedded, smaller mechanical systems. For example, Clark Pacific's prefabricated system eliminates the standard in-the-field topcoat of the concrete slab. The resulting slimmer slabs allow a lower floor-to-floor height without affecting the typical 10-foot interior office ceiling heights. Clark Pacific's Senior Product Manager **Jon Mohle** estimates that a six-story standard building can become a seven-story prefabricated radiant slab building without affecting the building envelope or interior ceiling height due to compounded space savings. In turn, more rentable square footage can increase the property's income stream.

Protecting the Ozone

Radiant slabs protect against refrigerant leaks, an environmental culprit. Traditional VRF (variable refrigerant flow) systems use "extremely large volumes of refrigerant, in highly pressurized bespoke mazes of field-fabricated copper pipe, making refrigerant leakage fundamentally unavoidable," according to Integral Group's "Radiant Whole Life Carbon Study." While any air conditioning system has the potential for such leaks, the integrated, smaller pipes and fewer pipefittings of a radiant system make leaks less likely. In all, Integral Group claims 88% less carbon from refrigerant leakage from a radiant system, even when compared against very conservative industry standard estimates.

In all, Integral Group claims 88% less carbon from refrigerant leakage from a radiant system, even when compared against very conservative industry standard estimates.

Moreover, prefabricated systems have added preventive qualities. By pressurizing fittings in a controlled setting rather than in the field, a factory-assembled refrigerant piping system can lead to rapid flaw detection. Traditionally, MEP engineers hunt for refrigerant leakage when a system registers a drop in pressure or underperforms. But at that point, carbon dioxide has already been released into the atmosphere.

Load Shifting

Timing and demand — particularly for cooling — drives utility expense. Unlike a thermally light building, which must respond to loads when they occur or risk occupant discomfort, the mass in floor slabs provides a buffer.

The University of California, Berkeley's Center for the Built Environment (CBE) reports that thermally massive radiant cooling systems are often used in pre-cooling mode and turned off during peak cooling periods. This ability to shift electrical demand to off-peak hours and lower pricing allows the building "to do its heating and cooling when it wants to," says Zallen. Efficiency becomes the reward for the patient accumulation of energy by a thermal mass.

For more fine-tuning, computer scientists at CBE work with algorithms that marry slab control zones to air temperature set points. CBE has conducted simulations for a hybrid HVAC system with under-floor air distribution and a cooled radiant ceiling slab. The energy reduction for a climate similar to Sacramento, California, measured 21%-25% during peak cooling months with superior occupant thermal comfort.

Cost, Savings and Incentives

Clark Pacific's prefabricated radiant slab system is intended to have cost parity. Mohle acknowledges that "to significantly impact the carbon trajectory of our built environment, low-cost solutions can't cost more than traditional methods." In addition, longer-term payoffs of reduced utility bills, energy credits and clean power credits can provide more economic incentives.

Finally, the value-driven decision to reduce carbon can provide a market advantage for securing tenants who share environmental concerns.

Smaller Carbon Footprint

Radiant slabs reduce carbon through combined efficiencies such as using less cement and concrete, lower refrigerant leakage and managed electrical demand. Integral Group's analysis of precast systems like Clark Pacific's says they offer "conservatively, at least 40% less whole life carbon emissions than a business-as-usual all-electric building."

And while the prefabricated aspect equates to significant carbon savings, Zallen says that radiant slab buildings, even those constructed in the field, "would still be a positive story." ■

Alice Devine, award-winning author of "Suite Deal, the Smart Landlord's Guide to Leasing Real Estate," lectures at the University of California, Berkeley's Haas School of Business.

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Autonomous Vehicles Are Down the Road, But Where Will They Park?

Parking facilities could stay roughly the same size as they are today, but with significant redesigns.

By Douglas Gettman, Ph.D.

While the timeline regarding the implementation of personal automated vehicles (AVs) is highly uncertain, it appears likely that driverless taxis, transit and goods delivery could soon be a widespread reality. During the past 90-plus years, the built environment has largely been shaped by the automobile. However, according to UCLA urban planning professor **Donald Shoup** in his book "The High Cost of Free Parking," almost all privately owned automobiles are parked 95% of the time. So, what impact will AVs have on parking infrastructure?

Driverless Vehicles Mimic Drivers

Though most parking concepts for AVs focus on parking that optimizes curb space, will AVs park at facilities at all? Current driver behaviors may help answer that question. In suburban environments, conventional taxis with drivers tend to park where they expect demand. In dense urban environments, most drivers travel around looking for fares.

Though most parking concepts for AVs focus on parking that optimizes curb space, will AVs park at facilities at all? Current driver behaviors may help answer that question.

Getty Images

In the not-too-distant future, developers will have to consider how to redesign parking facilities for autonomous vehicles.

Driver behavior at transportation network companies (TNCs) like Uber and Lyft follows a similar pattern: some stay put until a fare appears, while others continue to circulate. While pilot deployments of AV taxis are limited to certain areas today, AVs will likely behave in the same manner — parking at common demand spots or driving around until hailed.

AVs Take Charge

If the division of parked and circulating AVs follows the pattern of human-driven taxis, it will be strongly influenced by where AVs can be charged or refueled. For example, undercarriage charging, which is a wireless method for rapidly re-energizing a car's batteries that doesn't require precision docking or a human attendant to plug the AV into a charging station, is likely to become important in the future.

Some AV transit concepts feature very low-capacity batteries since they can be charged incrementally at stops. In the future, there may be more emphasis on short-burst charging for AV taxis at the curb vs. 300-mile-range megabatteries, which are designed to minimize driver anxiety for personally owned electric vehicles (EV).

In-line inductive charging, in which the electrical current is transported magnetically, could be a popular wireless charging approach, but it may not work at scale since it would require embed-

If the division of parked and circulating AVs follows the pattern of human-driven taxis, it will be strongly influenced by where AVs can be charged or refueled.

ding electronics and wiring in roads, or using new concrete mixtures with magnetic ferrites or graphene as aggregates. This would also be additional infrastructure for public agencies to maintain. While the technology is being actively researched with a handful of successful operational demonstrations around the world, in-line inductive charging is still far from a proven long-term solution. Because of that, it seems likely that AVs will have to park somewhere temporarily to recharge to operate efficiently during the next decade or beyond.

AV Fleets as Amenities

In the future, apartment buildings and condominiums may offer AV fleets as amenities, but building owners will likely not own the vehicles. Like traditional rental cars, AVs will get worn out quickly, so they will probably be leased from an AV service provider. Multifamily developments will have to decide how many AVs to offer and create policies for their use. For example, will AVs be available first-come, first-serve, or will reservations or subscriptions be required? If the building pivots from assigned paid parking spaces to parking for fleet AVs, will fewer parking spaces be needed?

Parking the Fleets

Unless a gig-economy concept is

invented that services cars at their distributed resting spots, it's likely AVs would return to a mothership facility operated by the service provider for cleaning, repairs and recharging before being dispatched to customers the next day.

The same number of vehicles will be needed to take tenants to their workplaces in the morning and then return them home in the evening. Peak demands for travel won't change much even if working from home remains popular in the aftermath of COVID-19. For this reason, vehicle miles traveled (VMT) is more likely to go up with AVs, not down. This may not be the case if ridesharing becomes incredibly popular, but not everyone is open to the carpooling options that TNCs offer.

Imagine a building in which 100% of the tenants use the AV service; 50% pay a premium to have their own AVs and the other 50% opt for ridesharing. Parking AVs nose-to-tail may allow for more vehicles in the same amount of parking space, but a larger ingress and egress area would be needed for tenants to access the AVs in an orderly fashion. Overall, the parking footprint of a building like the one in this scenario is unlikely to decrease substantially because of AV services.

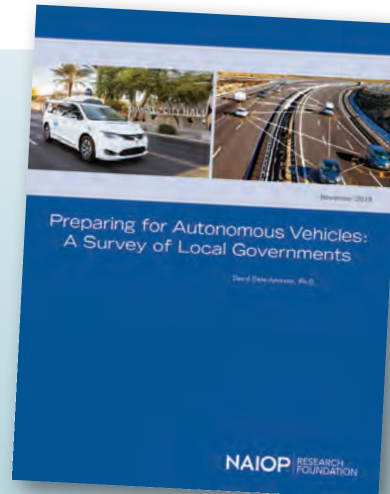
Retail and Short-Term Parking

Destination parking for retail and other short-term needs could probably be

In the future, apartment buildings and condominiums may offer AV fleets as amenities, but building owners will likely not own the vehicles.

Relevant Research

In November 2019, the NAIOP Research Foundation published "Preparing for Autonomous Vehicles: A Survey of Local Governments." The report, by NAIOP Research Foundation Distinguished Fellow **David Dale-Johnson**, Ph.D., the Stan Melton Executive Professor of Real Estate at the Alberta School of Business at the University of Alberta, examines how local governments are preparing for fully autonomous vehicles and explores how future AV-related policies could affect the commercial real estate industry. The author interviewed eight community leaders from local governments in the U.S., Canada and Australia and reviewed recent secondary sources



to identify significant trends in AV development and related municipal policies.

To learn more or to download the report, visit: www.naiop.org/en/Research-and-Publications/Reports/Preparing-for-Autonomous-Vehicles ■

significantly reduced. Still, would the user be owning the AV for personal use, renting the same AV for several hours (like a ZipCar or Car2Go), or is a different AV bringing them home from their destination (like a traditional taxi or TNC)?

Multiple business models will likely be available to meet the needs of customers, so parking will probably evolve into a combination of pick-up and drop-off areas and traditional spaces.

Helping AVs Navigate Parking Lots

Once an AV has reached a parking lot, how will it find its way around? Will it use wayfinding beacons or GPS? This is a tactical problem that could pose a significant challenge.

Parking concepts with nose-to-tail storage have minimal space between each row of AVs, meaning there's little room for error. GPS does not work very well indoors or in underground facilities. While native sensors on an AV may help it line up precisely in the correct spot, knowing where to go is perhaps a different story.

Accomplishing this may require the vehicle to store a map of the garage, or for map data to be transmitted to the AV when it enters the facility.

SAE International, a standards-developing organization, has defined a standard for a 2-D signal-controlled intersection Map Data (MAP) as part of its J2735 Standard for Dedicated Short Range Communications for Wireless Access in Vehicular Environments (DSRC/WAVE). This standard helps connected and automated vehicles interpret traffic signal information and navigate signalized intersections safely. More complicated geometric descriptions have not been specified in the standards to date, such as the presence of gates, RFID readers, space restrictions and similar obstacles. Garages are also frequently 3-D spaces, so standards from other technology

continued on page 56

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Industrial Design Trends

What you need to know about this rapidly growing commercial real estate sector.

Multistory Industrial

This new asset class has been solidified as a sustainable development strategy due to capital markets, e-commerce, and 3PL acceptance. We are now seeing multistory developments becoming viable in locations other than just port locations where land costs and rent levels haven't previously yielded the return on investment. Ware Malcomb's multistory protype has been implemented into a growing number of markets where the increased demand for e-commerce same day delivery has outpaced available land development options. This new market reality has been magnified in the post-COVID era where online buying has seen increased consumer acceptance. Market drivers include lack of land and high land cost, as well as large van staging and loading requirements. Both land costs and consumer demand for same day delivery continue to increase at an unsustainable pace. To address this challenge, some multistory logistics centers are being designed with 100% robotics in an artificial intelligence 4D environment.

Automation Standardization

In some projects, automation is becoming standardized and commoditized, and is being designed into the speculative shell building. This model is financed by the developer and monetized in rent and long-term tax depreciation. This is an opportunity for developers to reexamine their product and the way they introduce industrial assets to the market to attract smaller e-commerce users who may not have the capital to finance a building, or compete with the major e-commerce leaders. In these unique facilities, the automation dictates the design and configuration of the building from the inside out.

Facility Design

Due to advancements in design and construction technology, new design requirements are being incorporated into industrial facilities. These design specifications can include larger truck courts up to 135', 70-foot staging bays to increase requirements for light assembly, re-packaging or shipping areas and increased building heights up to 40' clear and beyond to accommodate multiple level internal mezzanines and pick to belt modules. Additionally, there are significantly increased parking requirements for both employee parking and vehicle/delivery parking and staging far beyond the minimum zoning requirements. As we see more of these design specifications introduced into the market, industrial facilities will need to be more flexible and dynamic in order to futureproof these facilities in their second and third generation to remain viable assets well into the future.

Technology

Technology is informing and shaping the industry. The lines are blurring between technology and architecture, where machine learning and artificial intelligence are changing how we design buildings. Technology such as ASRS (Automatic Storage and Retrieval Systems) and Auto Store Robotic Systems combined with machine learning software are emerging design concepts. Additionally, biomorphic façade design, urban farming, and automated vehicle loading circulation concepts are transforming how we design the site and exterior of this next generation of industrial facilities. All of these exciting technological developments will shape the industrial buildings of the future.

continued from page 54

areas such as gaming or building information modeling (BIM) will likely be necessary.

While demonstrations of AVs automatically parking have been around for a few years now, there is still much technical work to be done to make such operations work at scale.

Looking Ahead

Though much of the driverless future is unknown, it is not too soon to consider the parking infrastructure needed for its widespread introduction to succeed. Understanding driverless behaviors, and if and how AVs will park at facilities, is essential when planning for future parking infrastructure. How the AVs will charge and refuel is also an important consideration, as AVs will likely have to park somewhere at least temporarily to recharge.

Parking AVs nose-to-tail may allow for more vehicles in the same amount of parking space, but a larger ingress and egress area would be needed for tenants to access the AVs in an orderly fashion. Overall, the parking footprint of a building like the one in this scenario is unlikely to decrease substantially because of AV services.

In the future, if apartment buildings and condos offer AV fleets as an amenity, they should prepare to have their parking footprints stay relatively the same but with significant redesigns of how that space is used. In contrast, destination parking for retail and short-term purposes may decrease, but AVs may have trouble navigating parking lots, particularly underground and multistory facilities.

With a forward-thinking mindset, developers and investors who understand parking infrastructure for autonomous vehicles will stay ahead of the fleet. ■

Douglas Gettman, Ph.D., is a Smart Mobility and AV/CV Senior Consultant at Kimley-Horn.


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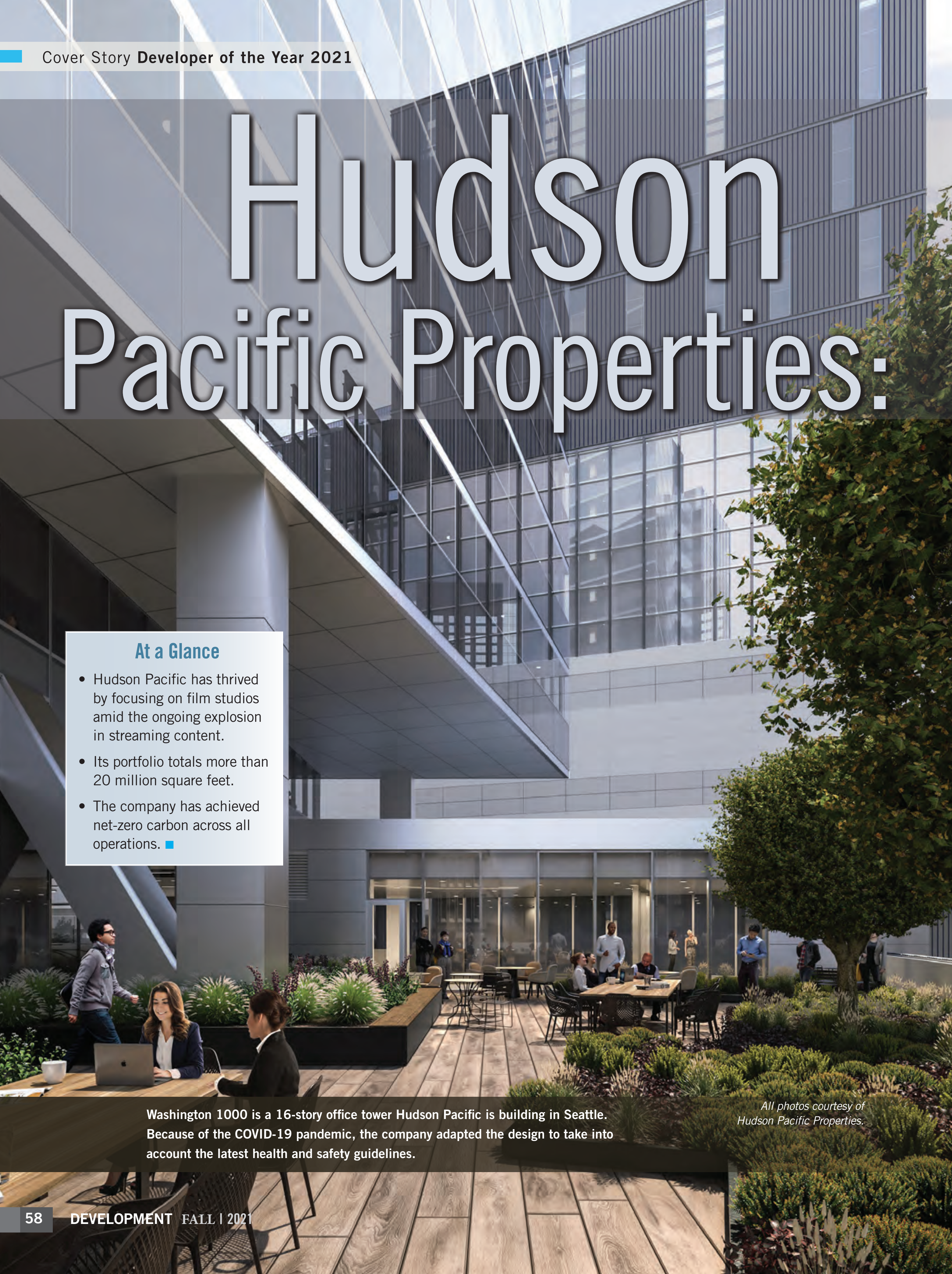


At a Glance

- Hudson Pacific has thrived by focusing on film studios amid the ongoing explosion in streaming content.
- Its portfolio totals more than 20 million square feet.
- The company has achieved net-zero carbon across all operations. ■

Washington 1000 is a 16-story office tower Hudson Pacific is building in Seattle. Because of the COVID-19 pandemic, the company adapted the design to take into account the latest health and safety guidelines.

All photos courtesy of Hudson Pacific Properties.

At the Epicenter of Tech and Media

This West Coast office REIT finds success by investing in creative office and studio properties.

By Ron Derven

In 2006, Victor Coleman launched Hudson Capital, which would soon become Hudson Pacific Properties, a Los Angeles-based office REIT focused on Class A creative office and studio properties at the heart of the tech and media worlds — Los Angeles and San Francisco. Silicon Valley, Seattle and Vancouver were added later.

Today, Hudson Pacific's creative office space is home to some of tech and media's biggest players — Google, Netflix, Square, Uber, Amazon, Riot Games and others. Hudson Pacific's Hollywood media portfolio, which it jointly owns with Blackstone and which includes Sunset Studios, totals 3.5 million square feet, including 35 active sound stages and on-site creative office buildings, as well as development rights. It's flourishing in the post-pandemic upsurge in streaming media. Netflix is planning to spend $17 billion on streaming content in 2021 vs. $12 billion last year, according to Variety.com, and all streaming companies are projected to spend $112 billion on content and software this year.

NAIOP has named Hudson Pacific its 2021 Developer of the Year for its innovative and sustainable approach to development, the outstanding quality of its products and services, its active support of NAIOP, its financial stability and adaptability, and its contributions to the communities in which it works.

"It is a tremendous honor for me and the whole company," Coleman, Hudson Pacific's chief executive officer, said. "It is an interesting award, because it is non-specific to an asset and rather reflects what we have done more broadly as a company. It acknowledges not just the construction team, the leadership team or the leasing team, but the totality of the company. We will cherish this award because it represents a company-wide effort and each of our employees' dedication to innovation, adaptability and leadership."


Hudson Pacific CEO Victor Coleman got an early start in the real estate business through his family.

Navigating COVID-19 was probably the biggest challenge to date for Hudson Pacific, but its 2020 performance shows that it succeeded:

The EPIC project in Hollywood is a 301,000-square-foot Class A, creative high-rise office. Designed by Gensler, the vertically stacked and terraced building has been 100% leased to Netflix.

At the height of the pandemic, Hudson Pacific delivered two world-class developments in Hollywood collectively totaling over 400,000 square feet — Harlow and EPIC — which will create more than $166 million of value for the company. EPIC was delivered 100% pre-leased to Netflix.

At a planned development project in Seattle called Washington 1000, a 538,000-square-foot office building, Hudson Pacific quickly altered plans and added innovative products and strategies that take into account the latest health and safety concerns.

Hudson Pacific, in partnership with Macerich, is redeveloping a former Los Angeles shopping mall into a 584,000-square-foot creative office campus, which is already 100% leased to Google.

In a joint venture partnership with Blackstone, Hudson Pacific will expand upon and unlock the huge potential of its media portfolio.

Real Estate in Family's Roots

Victor Coleman was born and raised in Vancouver, British Columbia. His father and uncle were business partners in the early 1970s. They worked together in the furniture manufacturing business and eventually sold it to a Canadian company. However, they continued to own the real estate facilities, and they launched a real estate company and began investing in properties.

"At a young age, I had exposure to commercial real estate, particularly industrial real estate," Coleman said. "Real estate is in my family's roots, and I started in real estate after graduate school; one of my younger brothers is in real estate; and my older brother is in the business as well."

Prior to forming Hudson Pacific, Coleman co-founded and led Arden Realty. He sold it in 2006 and then launched Hudson Pacific.

"When I sold my previous company, I handpicked about half a dozen people to join my next venture, which was Hudson Pacific," he said. "We wanted to create a company initially on the West Coast that was tenant and geographically focused on markets that we were very comfortable with."

Dramatic growth came quickly to Hudson Pacific.

"Between 2008 and 2012, we grew the size of the company significantly every year," Coleman said. "We started with one asset, then three, then seven. We recapitalized the company in 2010 when we went public on the New York Stock Exchange. From there, we grew the company from a market cap of approximately $500 million to around $8 billion."

Outstanding Quality of Products and Services

Coleman said his firm is the largest publicly traded owner of office space in Silicon Valley and one of

Harlow is Hudson Pacific's Class A office development at Sunset Las Palmas Studios in Hollywood. The four-story,130,000-square-foot building features greenhouse-inspired architecture, 26,000-square-foot floorplates and expansive terraces on every level.

"There is a voracious appetite for streaming content, and **the dollars that are being spent on that content are phenomenal."**

— Victor Coleman, CEO, Hudson Pacific Properties

the largest independent owner/operators of studios in the U.S.

"Our portfolio totals over 20 million square feet, including nearly four million square feet of ongoing or potential future development," he said. "Throughout our history, Hudson Pacific has invested over $2 billion in development and redevelopment projects. The quality of our projects is evident in both the rental rates we achieve and the top-tier tenants we attract. The studio business is an interesting one. Studios are very popular, and they are very much front-of-mind for many real estate and investment entities throughout the world. There is a voracious appetite for streaming content, and the dollars that are being spent on that content are phenomenal."

Hudson Pacific bought its first studio space in 2007 in Hollywood.

"When you think about people who own studios, they just don't own the real estate, they also own all the operating businesses associated with it," he said. "It is akin to the hotel business where everything is a la carte. A hotel guest rents a room, then you charge for other things. It is the same thing in the studio business. You charge for lighting, grip, transportation services, security and lots of ancillary services. You have all of that in one facility. So we pursued that, built an enterprise around it, built a company around it. Now we're looking to expand our platform in other key developing markets, which include London, New York and Vancouver."

Hudson Pacific's environmental, social and governance (ESG) platform, Better Blueprint™, has enhanced the quality of its products and services. According to its website, Better Blueprint "brings to life our vision of vibrant, thriving urban spaces and places built for the long-term. This 'blueprint' is integral to our business model and articulates principles and practices that form the foundation of our success and guide our work with tenants, employees, investors and partners."

Fully Carbon-Neutral Portfolio

One of Hudson Pacific's proudest achievements has been making its portfolio carbon neutral across operations. According to Coleman, the company's goal before the pandemic was to achieve net-zero carbon across all operations by 2025. However, COVID-19 demonstrated that operational changes to keep buildings safe and healthy (such as increased ventilation and air filtration) would have a major impact on its energy needs. Because of that, the company decided to dramatically expedite its carbon-neutrality efforts. By September 2020, Hud-

Sunset Bronson Studios in Hollywood began life in the 1920s as the home of Warner Brothers. Today, Netflix is among the production companies creating content here.

son Pacific achieved 100% net-zero carbon across all operations through a multifaceted strategy that includes energy efficiency, on-site renewables, off-site renewables, renewable energy certificates and verified emissions-reduction credits.

"While we are proud to be one of the first major North American landlords to go fully carbon neutral, this is just the beginning of our fight against climate change," Coleman said. "We are also doubling down on our use of sustainable technologies in areas such as water recycling, leak detection, window film, indoor-air-quality monitoring and improvement, and on-site renewables."

Adapting to Market Conditions

Hudson Pacific demonstrated its ability to adapt to market conditions throughout the pandemic and its aftermath. As the nation was hit with changing economic conditions, Hudson Pacific's team worked to negotiate more than 170 rent relief and abatement deals to help tenants large and small stay afloat during these uncertain times.

At its iconic Ferry Building in San Francisco, which the company purchased in 2018 in a joint venture with Allianz, it took notable steps to assure that the independently owned retail tenants could survive COVID-19. It quickly upgraded the air filtration systems in the building and enhanced cleaning procedures so that visitors would feel safer. It took bold steps to drive traffic to its merchants in COVID-safe ways. It created the largest outdoor dining venue in San Francisco with socially distanced seating for 200 people. For those who did not want to venture out, it launched a comprehensive food delivery service. Further, it added new and diverse offerings in vacant spaces. One exciting deal brought a non-profit community radio station, BFF.fm, to the building.

"When you think about people who own studios, they just don't own the real estate, **they also own all the operating businesses associated with it.**"

— Victor Coleman, CEO, Hudson Pacific Properties

At its planned 538,000-square-foot office project in Seattle called Washington 1000, Hudson Pacific adapted the design to take into account the latest health and safety guidelines. It changed its plans and added large Juliet balcony openings on every floor to let in fresh air,

One Westside is Hudson Pacific's 584,000-square-foot redevelopment of the Westside Pavilion shopping mall in Los Angeles. Google has signed a 14-year lease that will commence when construction is completed in 2022.

placed antimicrobial finishes at key touchpoints, and included flexible options for touchless facilities such as restrooms with airport-style doorless entries. Like many of Hudson Pacific's other developments, Washington 1000 will feature nearly 13,000 square feet of outdoor space off the main lobby and a rooftop amenity with outdoor meeting space equipped with the latest health and safety technology.

Despite worries about the pandemic, the company forged ahead in 2020 with significant repositioning projects. At the Bentall Centre in Vancouver, it began renovating the 1.5-million-square-foot office and retail campus to create a more vibrant destination in the city's central business district. The first phase of enhancements included the revitalization of outdoor plazas, a new tenant fitness center, a publicly available YMCA and a rooftop dog park.

Adapting to market conditions begins with empowering employees, according to the company. Hudson Pacific offers an interactive, instructor-led program titled Foundations of Leadership to provide employees with an overview of leadership skills and deeper insights into the company's business. It helps employees achieve all that they can at the company.

After violent examples of racial inequality across the U.S. during the summer of 2020, the company accelerated and enhanced its diversity, equity and inclusion (DEI) program to train Hudson Pacific's teams about confronting and dismantling racism and building an organizational culture of trust, respect and belonging. A robust 10-hour DEI program, completed in five two-hour sessions, was rolled out. To date, 185 employees have completed the training. The company says all employees will finish the program by the end of the year.

Financial Consistency and Sustainability

Hudson Pacific tackles complex, innovative projects in urban environments.

"We undertake a lot of adaptive reuse where we can effectively put our capital to work," Coleman said. "Our portfolio is in high-barrier markets with established industry networks poised for outsized growth that are more resilient through cycles. Most of our tenants are mature, blue-chip and growth companies focused on the tech, media and entertainment sectors."

An outstanding recent example of this strategy is a Los Angeles project known as One Westside. Hudson Pacific is transforming the former Westside Pavilion mall into a 584,000-square-foot Class A urban creative office campus. The company has already pre-leased the entire property to Google. Construction is underway, and Hudson Pacific is expected to deliver the project to Google in the first quarter of 2022.

Designed by the architecture firm Gensler, the project repurposes high ceilings and a multi-level atrium and skylight, allowing for natural light-filled interiors. Floorplates up to 150,000 square feet provide hyper-flexible open layouts, while 45,000 square feet of expansive exterior terraces and patios with 15-foot-wide folding glass walls create a seamless indoor-outdoor environment. The property also features a rooftop amenity space with a garden deck and nearby restaurants and in-line retail shops.

During a tough year, Hudson Pacific continued to focus on long-term growth. In June 2020, it announced its largest joint venture to date with Blackstone, which purchased a 49% stake in its Hollywood media portfolio. This includes rights to build another 1.1 million square feet of office and production space at Sunset Gower and Sunset Las Palmas, unlocking value and capital to grow Hudson Pacific's platform in Los Angeles and other key markets.

In addition, Hudson Pacific and the Canada Pension Plan Investment Board purchased 1918 Eighth in Seattle in December 2020. It represents a significant expansion of its Seattle portfolio and investment in the city's Denny Triangle neighborhood. In the process, it makes Amazon one of the company's largest tenants.

Despite the pandemic and its challenges, Hudson Pacific performed among the top office REITs on multiple key metrics in 2020, according to analysis from the company. For example, full-year adjusted funds from operations, a measure that estimates the value of a REIT, grew 40%. The company signed more than 800,000 square feet of leases with robust GAAP and cash rent spreads of 22% and 14%, respectively, and collected 98% of its rents, including 99% of office and 100% of studio rents, during the three quarters impacted by the pandemic.

"We also maintained strong stabilized and in-service office portfolio leased percentages of 94.5% and 93.5%, respectively," Coleman said.

Health and Wellness in Buildings

Hudson Pacific Properties has a long history of providing state-of-the-art buildings that drive wellness and well-being. Virtually all its buildings offer abundant natural light, healthy food, fitness amenities and functional outdoor space.

In 2020, Hudson Pacific joined the Fitwel Champions Program, the world's leading certification system for optimizing building design and operations to support human health and well-being. By the end of 2020, the company had increased its square footage that was Fitwel-certified from 2% to 23%.

As the pandemic surged, Hudson Pacific prioritized health and safety above all else. It implemented new standard operating procedures that touched on everything from enhanced cleaning to indoor air quality. It deployed new signage, implemented hundreds of safety-focused capital improvements and upgraded HVAC air filters to MERV-13 or higher at 99% of its properties. These filters can capture about 90% of pathogens. (MERV stands for Minimum Efficiency Reporting Value. A higher MERV number means that the filters can capture smaller particles.)

By the end of the year, Hudson Pacific had achieved Fitwel Viral Response (VR) Certification over this portfolio-wide approach. The VR module establishes minimum standards to protect building occupants from an infectious disease outbreak. ■

> "NAIOP is the pre-eminent organization in our industry, and our employees at every level of the organization in every region are actively involved in their respective chapters. **NAIOP provides valuable opportunities for our professionals to network and to share best practices. We are glad to be part of it.**"
>
> — *Victor Coleman, CEO, Hudson Pacific Properties*

Active Support of Industry through NAIOP

With offices in Southern California, Northern California, the Pacific Northwest and Western Canada, Hudson Pacific employees are active NAIOP members across several association chapters, including NAIOP SoCal, NAIOP San Francisco Bay Area, NAIOP Silicon Valley, NAIOP Washington State and NAIOP Vancouver.

- The company is a major participant in each of those chapters.
- The company is a Silver Sponsor of NAIOP SoCal, and six of its employees are active in the chapter.
- In Northern California, it is a Silver Sponsor of both the Silicon

Valley and San Francisco chapters. Several employees are actively engaged as members of the San Francisco NAIOP Chapter, and three of its Northern California employees have participated in NAIOP's Young Professionals Group.

- In Seattle, Hudson Pacific is active in NAIOP Washington.

Since the launch of Hudson Pacific's Vancouver office in 2019, its team has supported NAIOP Vancouver as a Platinum Sponsor. A total of 25% of its Vancouver employees are registered as members of NAIOP Vancouver.

"NAIOP is the pre-eminent organization in our industry, and our employees at every level of the organization in every region are actively involved in their respective chapters," Coleman said. "NAIOP provides valuable opportunities for our professionals to network and to share best practices. We are glad to be part of it."

Active Support for Community

Coleman said that giving back to the communities where it operates is part of the firm's DNA.

"It is important to our employees and stakeholders that we do not just commit on a general level, but also on a specific level, donating as a company," Coleman said. "We donate at least 1% of our net earnings to charitable causes annually. We specifically focus on causes that are aligned with our Better Blueprint priorities."

Recently it launched Vibrant Cities Arts Grants, which contributed $650,000 to Los Angeles artists who were impacted by COVID-19. It gave special consideration to artists of color, female artists and LGBTQ+ artists.

Hudson Pacific employees fill boxes at the Los Angeles Regional Food Bank. The company's staff members get 32 paid hours a year for volunteer work.

In February, Hudson Pacific pledged $20 million over the next five years to address homelessness in its core markets.

Employees are encouraged to donate money and time to eligible non-profits through three company programs:

Employee Matching. The company doubles an employee's cash donation to a worthy cause up to $1,000 a year;

Dollars for Doers. Hudson Pacific gives a $250 grant, up to $1,000 a year, to a non-profit where an employee donates at least 20 hours of his or her time;

Volunteer Hours. This gives employees 32 paid volunteer hours annually to volunteer with an eligible non-profit. This program may be used at a company-sponsored event or independently at an eligible non-profit.

In 2020, Hudson Pacific developed its My HPP Office app, and this enabled the company to pivot charity events involving tenants to a mobile platform during times of social distancing. This included its annual Coat Drive, which encouraged tenants to donate more than 630 coats from Los Angeles to Vancouver. In addition, employees across its regions volunteered at socially distanced and COVID-safe events. The app has also been critical in communicating safety protocols and building-access updates directly to tenants across Hudson Pacific's portfolio without needing to go through a single-tenant contact.

The Future

Looking ahead several years, what are Coleman's plans for Hudson Pacific?

"Our growth will be in areas where we are already present," he said. "We will add additional markets like New York and London for our studios going forward, but between Vancouver down to Los Angeles, there are great opportunities in office and studio development and redevelopment for us." ■

Ron Derven is a contributing editor for Development magazine.

Second-Tier Cities Thrive in the Post-Pandemic World

Smaller metropolitan areas are recovering faster than bigger ones, and their future looks bright.

Miami has been one of the fastest-growing cities in the U.S. during the past decade. Its population increased nearly 20% between 2010 and 2020.

Getty Images

At a Glance

- Second-tier cities were seeing strong growth before the pandemic.
- Technology that allows for remote work is helping these smaller cities grow even more.
- Another reason people are flocking to second-tier cities is the lower cost of living.

By Ron Derven

Second-tier cities suffered the economic ravages of the COVID-19 pandemic just like their counterparts in large global cities. But as the virus recedes across the country, many of these smaller metropolitan areas seem to be gaining jobs and recovering more quickly than the U.S. as a whole, according to commercial real estate experts. There are several reasons.

Second-tier cities have attracted people and companies over the past decade because they are less expensive places to live, work, play and run a business compared with their larger counterparts. That trend seems to be accelerating.

The ability to work from anywhere, powered by technology that allows people to collaborate easily while physically separated, is also boosting the viability of second-tier cities.

Second-tier cities with universities are a rich resource for companies that need to attract a talented workforce and cutting-edge innovators.

As second-tier cities continue to flourish, global cities will likely thrive as well.

The suburbs, however, which have seen big demand since the pandemic struck, may recede in popularity as employees feel safer about returning to urban offices.

Acceleration of Trends

- Second-tier cities such as Atlanta, Austin, Charlotte, Dallas, Denver, Miami, Nashville and Raleigh have seen 10-year population growth of between 10%-30%, outpacing the 2010-2020 U.S. population growth of 7.1%, according to a recent JLL report. In addition, JLL notes that there are industry clusters developing in tech, life sciences, media, professional services and finance/insurance in second-tier cities.
- Recent surveys indicate that the appetite for smaller cities over big ones has increased in the past 15 months. Residential real estate website Redfin polled more than two million of its users nationwide and found that 30.3% were looking to move to a different metro area in the fourth quarter of 2020, up from 16% during the same period in 2019. That's the highest share since Redfin started tracking migration

Six Second-Tier Cities to Watch

"24-Hour Cities" author **Hugh Kelly** notes a group of second-tier cities that are growing well post-pandemic.

Austin. "It is almost back because its employment levels are coming back strongly. It did not have the same loss in jobs that the U.S. in general experienced. Its recovery has been faster, and it is closer to getting back to where it was." (See related story, page 94.)

Nashville. "The city is also recovering well. It had a big drop in employment rates, but it is coming back. Employment is still down about 2.5% to 3% year over year. That's better than the U.S., which is 5% down. Nashville has a diverse economy, and there is plenty of in-migration from around the country."

Phoenix. "Phoenix is very much a one-dimensional economy. Its growth is often construction-based and that is what is happening now. Arizona is getting a lot of in-migration from California. The risk for Arizona — indeed the whole west — is climate. Phoenix is even more dependent now on Lake Powell and Lake Meade for water, and they are at historically low levels.

Denver. "Denver is an 18-hour or second-tier city that is doing quite well. Denver has undertaken a very intentional reconfiguration of its relationship to suburban areas. It has made a strong effort to take the downtown and make it a real place to come to and a place to stay. It has done that in supporting business, in providing infrastructure and by good marketing, such as the revitalization of the old Union Station. That all gets sustained in a recovery."

Seattle. "Seattle is doing well. Like Austin and Denver, there is a tech component to it. The tech firms have helped the economy, and tech will play a big part in its future."

Houston. "Houston has done a great deal to reinvent its downtown. There is great strength in the Texas Medical Center, and it has been a long-term asset for Houston. Houston opted to invest in light rail between the medical center and the downtown. The light rail allows the bright, young talent at the medical center and Rice University to access downtown. Although the city does not have a zoning code, it nevertheless encouraged high-rise residential development at its core, which created more of a walk-to-work kind of environment." ■

> "Of these two trends, **the durability of the movement of people to secondary cities is clearly going to be more durable than the suburban trend,** which I see as relatively short-lived — certainly from a commercial real estate perspective."
>
> — *Spencer Levy, global chief client officer and senior economic advisor, CBRE*

Getty Images

Clark County, Nevada, where Las Vegas is located, has seen its population grow by 67% since 2000, according to the Center for Business and Economic Research at UNLV Lee Business School.

in 2017. The number of people moving to affordable metros in the first quarter of 2021 more than doubled from the year before. The biggest net inflows were to Austin, Las Vegas, Phoenix, Sacramento and Dallas.

- A recent survey by U-Haul backs this trend. The truck and trailer rental company tracks about two million annual truck rentals looking for one-way trips from one state to another. It found that the biggest influx of do-it-yourself movers was into Tennessee. Texas was second and Florida was third. Ohio, Arizona, Colorado, Missouri, Nevada, North Carolina and Georgia rounded out the top 10. The lowest-ranking states in this survey were Michigan, Pennsylvania, New York, Connecticut, Louisiana, Oregon, Maryland, Massachusetts, New Jersey, Illinois and California.

John Burns Real Estate Consulting found in a survey that the movement of people accelerated during the pandemic. The coastal Southeast and Florida — Jacksonville, Myrtle Beach, Charleston, Sarasota, Orlando and Tampa — attracted people, as well as the big inland southern markets of Charlotte, Atlanta, Nashville, Houston, Dallas and Fort Worth. The affordable tech markets of Boise, Austin, Raleigh-Durham and Salt Lake City were also luring workers in large numbers.

Finally, two-thirds of respondents in Gensler's City Pulse Survey want to leave their global city for a lower-cost, smaller city that offers a high quality of life and lower cost of living. (See related stories, pages 26 and 74.) It shows that many respondents were already thinking of leaving global cities even before the pandemic hit. In the case of San Francisco, 76% of respondents wanted to depart. Generationally, 80% of Gen Xers were contemplating moves before the lockdowns.

There was already a strong trend of people moving to second-tier cities before the pandemic because of their lower cost of living, lower cost of doing business, lighter tax burden, higher job growth and more affordable housing, said **Spencer Levy**, global chief client officer and senior economic advisor for CBRE.

"Since the pandemic, we have had an acceleration of trends both to second-tier cities and to the suburbs," he said. "Will this acceleration continue? Of these two trends, the movement of people to secondary cities is clearly going to be more durable than the suburban trend, which I see as relatively short-lived — certainly from a commercial real estate perspective. The move to second-tier cities began pre-pandemic, and now with the growing trend of work from home or

Getty Images

The Pittsburgh region is seeing a slew of industrial projects to accommodate next-day and last-mile deliveries.

"Pittsburgh has been blessed to have Carnegie Mellon and the University of Pittsburgh, among others. Carnegie Mellon is particularly valuable with its two tech niches tied directly to the future U.S. economy — artificial intelligence and automation technology."

— Bill Hunt, president and CEO, Elmhurst Group

The Best CRE Products for Second-Tier Cities

While all real estate is admittedly local, Bill Hunt, president and CEO of Elmhurst Group, offers advice on the best product types for second-tier cities, based on his experience in Pittsburgh.

"Every property was hit hard during the pandemic," Hunt said. "The hotel sector will come back quicker in secondary markets than in primary markets because secondary markets are less reliant on large conventions and international travel. This gap will not last long, though, as the overall industry will return by early next year, even in the larger cities."

Pittsburgh is unique when it comes to industrial development, according to Hunt.

"Pittsburgh never had large distribution centers because we lacked a highway beltway system and a strong interstate network," he said. Because of that, products were supplied from distribution hubs in Columbus and Cincinnati to the west and Harrisburg, Pennsylvania, to the east.

"Now, with next-day and last-mile fulfillments, there has been a major rush to build smaller distribution centers throughout our region, which has caused an industrial boom here," he said

Hunt is developing a new product that he calls an innovation center. It will be two buildings of 80,000 square feet each, with high-bay manufacturing taking roughly half the space and office taking the other half.

"It is modern-day high-tech flex space," he said. "Every tenant will have its own space, as there is no common area, and the prospects we are targeting are at the nexus of software and hardware. Examples include robotics companies that are researching automated systems. Software engineers can work alongside the actual product on the manufacturing floor. We feel this is space for the future."

Although Hunt does not develop multifamily, he sees a need for the product.

"In Pittsburgh, for example, some of the most successful developments are pursuing the medical employees who previously commuted long distances to get to the hospitals," he said. "Now they can live, perhaps two to three blocks from their place of employment."

As for retail, Hunt is realistic about the product type.

"At the end of the day, high-quality malls are going to remain in demand," he said. "In Pittsburgh, we have four or five regional malls. We will probably end up with only two or three. People may still continue to shop, but the mall they visit may no longer be in their neighborhood." ■

work from anywhere, it should only increase."

Even before the pandemic hit, coastal markets had become increasingly expensive both from an occupier and employee perspective, according to **Maria Sicola**, managing and founding partner at CityStream Solutions, a San Diego-based architectural and planning consultant.

"This dynamic was especially apparent in San Francisco, where many occupiers and employees have moved out because it is overpriced," she said.

In addition, Sicola said a focus on family prosperity and well-being made moving to second-tier cities a necessity.

"The costs of living — housing, quality schools, childcare services — are increasingly burdensome on dual-income families and even more so on women raising children alone," she said. "There are many jobs and cities where income levels are less than the cost of childcare. Many women are leaving the workforce to take care of kids simply because it's too expensive to do otherwise. The option of locating in lower-cost cities is more likely to make economic sense for women to stay in the workforce, which is an important factor in career fulfillment, future earnings, closing the gender pay gap and providing a larger workforce for employers."

The trend of people moving to second-tier markets has probably been going on for a decade, noted **Phil Ryan,** director of U.S. office research for JLL.

"During COVID-19, people had the ability to work remotely," he said. "When recent data started coming in from alternative measures — things like change-of-address forms and tax-related data from the government — what we saw was that people who were planning to move to the suburbs in the next couple of years did it in one year, which caused huge increases in housing prices. That said, the trend for migration to secondary markets is there, and we don't expect that to stop, barring some sort of structural shift."

"The costs of living — housing, quality schools, childcare services — are increasingly burdensome on dual-income families and even more so on women raising children alone. There are many jobs and cities where income levels are less than the cost of childcare. Many women are leaving the workforce to take care of kids simply because it's too expensive to do otherwise. **The option of locating in lower-cost cities is more likely to make economic sense for women to stay in the workforce, which is an important factor in career fulfillment, future earnings, closing the gender pay gap and providing a larger workforce for employers."**

— Maria Sicola, managing and founding partner, CityStream Solutions

Work-from-Anywhere or Everywhere

Working from anywhere during the pandemic may well have changed workplace habits for years to come, which bodes well for second-tier cities. Employers seem to be more flexible about work schedules, which employees are increasingly demanding.

According to the latest report by Owllabs.com, a website that tracks remote working, 50% of people surveyed said they will not return to jobs that do not offer telework options. The report also found that people are using video meetings 50% more than before the pandemic; working remotely saves at least 40 minutes a day on commuting time; 75% of people are equally or more productive working remotely than in the office; one in two people would move for a job that allowed them to work remotely; and 80% of those polled expect to work from home at least three days a week going forward.

A recent PwC survey found that both employers and employees view remote work favorably. A total of 83% of employers now say the shift to remote work has been successful, and less than one in five executives say they want to return to the office as it was pre-pandemic.

What started as people seeking shelter from the pandemic storm could turn into a major lifestyle stampede.

"Initially, people moved from the 24-hour cities to country living, which really started to occur during the summer of 2020," said **Bill Hunt**, president and CEO of Elmhurst Group in Pittsburgh, Pennsylvania. "That's fallen off. At a certain point people will say, 'maybe I won't move back to New York City, but I do need more of an urban environment.' This bodes well for secondary cities like Pittsburgh and others. I've seen first-hand people moving away from the 24-hour cities during the pandemic to secondary cities and then staying put. These secondary cities have a stickiness to them that keep people there. In this work-from-anywhere economy, people are saying they have the quality of life they need."

Rapidly advancing technology has facilitated the work-from-anywhere trend. Sicola said the pandemic forced companies to catch up quickly and adopt video conferencing, document collaboration and other remote working tools. It also forced the technology companies (Zoom, Microsoft, Dropbox, etc.) to handle a massive surge in demand and deal with security issues.

"Everyone, especially managers, has now experienced remote working first-hand," she said. "It is much more likely to be incorporated into our overall working culture now than before the pandemic. Along with the rise of flex space, this makes having smaller offices spread across more markets more feasible than it was before, which presents an opportunity for smaller metros."

University Cities Make Sense

Second-tier cities with universities have a real edge over non-university towns, according to Hunt.

"Universities provide many amenities that are not always in other secondary towns," he said. "They provide theater, culture, museums, coffee shops and upgraded city neighborhoods. Pittsburgh has been fortunate to have Carnegie Mellon and the University of Pittsburgh, among others. Carnegie Mellon is particularly valuable with its two tech niches tied directly to the future U.S. economy — artificial intelligence and automation technology."

As the U.S. seeks to become more competitive in research and development, Sicola said there is a big opportunity for second-tier cities with universities such as Raleigh-Durham, North Carolina.

> "I've seen first-hand people moving away from the 24-hour cities during the pandemic to secondary cities and then staying put. **These secondary cities have a stickiness to them that keep people there.** In this work-from-anywhere economy, people are saying 'it has the quality of life I need.' "
>
> *— Bill Hunt, president and CEO, Elmhurst Group*

24-Hour Cities Will Thrive after Bumpy Recovery

Levy suggests not writing off big cities like New York and San Francisco.

"Our studies show that the outlook for 24-hour cities continues to be strong," he said. "Although there may be a net loss of people on an aggregate basis, the most talented and highest-paid people still will flock to the 24-hour cities. The major cities — New York, San Francisco, L.A., Washington, D.C., Boston, Chicago — will be challenged in the short term, but they have a bright future long-term."

Relevant Research

Discover a new way to measure risk and identify potential investment opportunities in the NAIOP Research Foundation's next report, "A Two-Dimensional Approach to Evaluating Commercial Real Estate Markets." The report will shine a new light on the relationship between market size and risk, revealing that the biggest markets are not always the safest markets for investors and developers.

www.naiop.org/en/Research-and-Publications/Reports/A-Two-Dimensional-Approach-to-Evaluating-Commercial-Real-Estate-Markets ■

> **"What we are seeing today is that gateway cities are attracting highly skilled and talented people. These are the people that drive a lot of the innovation and productivity and require in-person work.** Secondary markets are thriving in ancillary and support services such as payroll, accounting, compliance and regulatory affairs that can be done in a more remote, cost-effective setting, with a smaller but growing share of innovation jobs."
>
> *— Phil Ryan, director of U.S. office research, JLL*

Ryan noted that gateway markets continually get a disproportionate amount of inbound people from international migration. It has fallen off in the past year and a half due to COVID-19, but growth should pick up in those ports of entry.

Further, he said in the early days of the pandemic, many wondered if companies would move their main offices out of cities to suburban locations.

"What we are seeing today is that gateway cities are attracting highly skilled and talented people," Ryan said. "These are the people who drive a lot of the innovation and productivity and require in-person work. Secondary markets are thriving in ancillary and support services such as payroll, accounting, compliance and regulatory affairs that can be done in a more remote, cost-effective setting, with a smaller but growing share of innovation jobs."

Regarding office utilization in gateway markets, Ryan is seeing decreases of 5% or less on an aggregate basis. Companies with hybrid models that let between 5% to 25% of their employees work remotely on a given day are also de-densifying their offices so that each employee has more space when working in person. The net result is taking the same or similar square footage pre-pandemic and reconfiguring it for fewer employees.

What will keep gateway markets thriving is scale and depth, according to JLL. For example, the New York area has 20 million people, Los Angeles has 13 million and the San Francisco Bay Area has seven million.

"Once you get away from these major markets, you have a fractional number of potential employees," Ryan said. "The talent pool is so much larger in a gateway city as opposed to the second-tier city. If a company suddenly decided to move from a gateway market to a second-tier market, they would lose access to a lot of people."

"Corporations may decide rather than having a large office building in Manhattan, they could convert to smaller offices in New York, and add locations in secondary and tertiary markets," Hunt said. "I don't feel big companies are going to suddenly say, 'OK, everyone can work from home.' There is too much value with 'WFW' (work from work)."

There is always an ebb and flow of population to and from big cities, explained **Hugh Kelly**, author of the book "24-Hour Cities: Real Investment Performance, Not Just Promises."

"Frankly, it is too early to know what will happen with the big cities," he said.

Kelly noted that the pandemic has indeed caused great disruptions, but he is not sure if the movement of people out of cities that has taken place so far is a short-term coping mechanism or related to the longer-term trend.

Suburban Trend May Cool

While Levy of CBRE believes the 24-hour cities will prosper, he sees the trend of people moving from cities to suburbs cooling.

"The question is, will you see the same trajectory over the next few years?" he said. "The answer is no, you will not. What we have seen in this acceleration of trend regarding the suburbs was three or four years of movement crammed into one year. It will probably flatten out now."

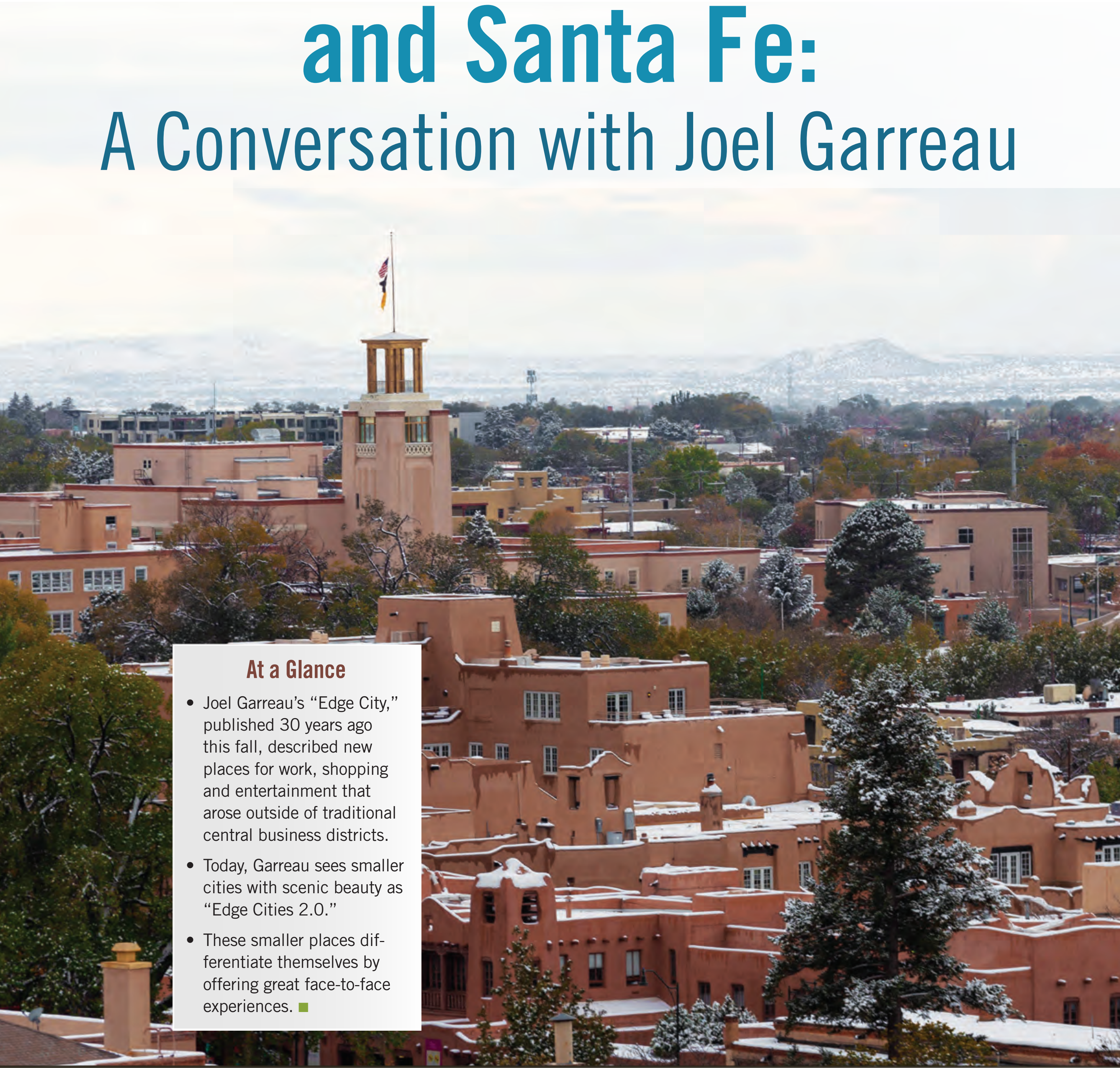
Levy does not see corporations moving their headquarters to the suburbs, but he does see more satellite offices in what is termed the hub-and-spoke model.

"We will also see a rise of what is one of the lesser known but hottest sub-asset classes, which is single-family rentals," he said. "There are more single-family rental units than multifamily rental units in the U.S." ■

Ron Derven is a contribution editor to Development magazine.

Suburbs, Edge Cities and Santa Fe:

A Conversation with Joel Garreau



At a Glance

- Joel Garreau's "Edge City," published 30 years ago this fall, described new places for work, shopping and entertainment that arose outside of traditional central business districts.
- Today, Garreau sees smaller cities with scenic beauty as "Edge Cities 2.0."
- These smaller places differentiate themselves by offering great face-to-face experiences. ■

Author and scholar Joel Garreau says scenic, human-scaled places like Santa Fe, New Mexico, are becoming a "new form of urbanity" that will attract more people and investments in the future.

The influential author sees the next boom towns emerging in smaller cities that are "urbane without the burdens of being urban."

Getty Images

By Gerard C.S. Mildner and Trey Barrineau

The status of the suburb has become a weathervane of American culture, criticized for its homogeneity and environmental impact, yet loved for its affordability and convenience. **Joel Garreau**'s modern classic "Edge City: Life on the New Frontier" (1991) explored the biggest revolution in 150 years in how the world builds cities, focusing on giant suburban office nodes and the development that grew up around them.

"Edge cities are typically freeway-hugging agglomerations of regional malls, business parks, hotels and the occasional rental apartment complex," wrote **Christopher B. Leinberger** of George Washington University in the Summer 2018 issue of Development magazine. "They are dependent on cars and trucks as their primary or only transportation option. And they are where the vast majority of economic

Joel Garreau's prototypical Edge City is Tysons, Virginia, about 15 miles west of downtown Washington, D.C. At right is the Tycon Tower building. In "Edge City," Garreau noted that locals had dubbed it "the World's Tallest Shopping Bag" because of its location adjacent to two large malls, which are crucial components of Edge Cities.

growth and substantial real estate development occurred in the late 20th century U.S."

Development magazine recently sat down with Garreau to discuss the future of cities — edge and otherwise — on the 30th anniversary of his groundbreaking book. The conversation has been edited for length and clarity.

Development: *Could you talk about the origins of your first book, "The Nine Nations of North America," and how that led to "Edge City"?*

Garreau: Back in the late 1970s, I was the national editor at the Washington Post responsible for all the reporters outside Washington, D.C. The conventional wisdom at that time was that the whole country had turned homogenous and bland and the same — including the built environment. It was all the same airports, all the same interstates. But when my reporters were out there trying to get a handle on the continent, we discovered that was not true at all.

There is no way that South Texas is anything like Maine. There is no way that Seattle is like Miami. Anyway, we ended up drawing on cocktail napkins to show boundaries that were real.

We used this originally as a news prediction device. But it resulted in the book called "The Nine Nations of North America."

Ten years later, I had another one of these moments. I ended up living in Fauquier County, Virginia, which is about an hour west of Washington, in the foothills of the Blue Ridge Mountains.

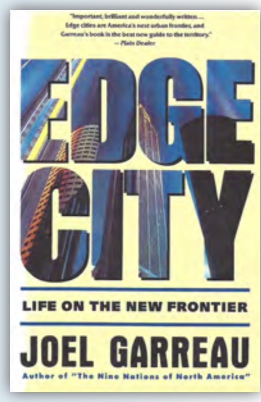
I drove back and forth every day and started seeing office towers erupting along my commute, including in Tysons Corner. I thought, "What? This is not suburbia!" Anyway, it led to another epiphany.

I decided to get to the bottom of this because I had been taught in school that sprawl was bad. As a reporter, I needed to discover who is responsible for this and expose them! I mean, that's what Washington Post reporters do, right?

So I started investigating, and one of the many things I discovered was that developers really cared about what they did. They carried

What Makes a Place an Edge City?

Here's how **Joel Garreau** defined an Edge City in his influential book, published 30 years ago this fall:



An Edge City:

- "Has five million square feet or more of leasable office space — the workplace of the Information Age."
- "Has 600,000 square feet or more of leasable retail space. That is the equivalent of a fair-sized mall."
- "Has more jobs than bedrooms. When the workday starts, people head toward this place, not away from it."
- "Is perceived by the population as one place. It is a regional end destination for mixed use — not a starting point — that 'has it all,' from jobs, to shopping, to entertainment."
- "Was nothing like 'city' as recently as 30 years ago. Then, it was just bedrooms, if not cow pastures. This incarnation is brand new."

In addition to Tysons, Virginia, other prominent Edge Cities include Century City in Los Angeles; King of Prussia, Pennsylvania; and the Research Triangle Park area near Raleigh, North Carolina. ■

pictures of these buildings around in their wallets like those of their children. They took them out and they showed them to me, and they felt passionate about their work. All they were doing was giving the American people what they demonstrably showed they wanted by that most reliable of measures — their willingness to pay for it.

So, I said, "OK, well, wait a minute. Why did they think they were just giving Americans what they wanted? What is it about Americans that made them think that this is right?" Anyway, one thing led to another, and that was the origin of my second book, "Edge City."

I discovered that Americans put an extraordinary value on individuality. They want to be able to live where they want, shop where they want and work where they want, all in unlimited combination. And if you do a spiderweb of those things, what you end up with is nodes at the intersection of transportation corridors.

I went to Coldwell Banker to confirm my hunch. In the late 1980s, it took four of their offices two weeks to generate these numbers. That's when I discovered that, for example, Tysons Corner, Virginia, was the largest urban core between Washington and Atlanta, even back then, as measured by white collar jobs, using 250 square feet of office space per worker as a surrogate for that. The book identified 123 places in the U.S. that had all the functions that a major city had

> "One of the many things I discovered was that developers really cared about what they did. **They carried pictures of these buildings around in their wallets like those of their children.**"
>
> *— Joel Garreau*

Profile of Santa Fe, New Mexico	
Population, 2019	84,683
Population Change, 2010-19	4.7%
Percent Hispanic	55.2%
Percent White Alone, Not Hispanic	40.0%
Median Home Price, 2015-2019	$280,000
Median Gross Rent, 2015-2019	$1,080
Bachelor's Degree, Age 25+	41.7%
Median Household Income	$57,972
Population Per Square Mile	1,477.8
Mean Travel Time to Work, Age 16+ (minutes)	19.3

Source: U.S. Census Bureau

"This is the opposite of suburbanization. This is not sprawl, this is aggregation — people coming together — and dispersion away from industrial-age places to human-scaled places. **It's people coming together, but to their ideal places.**"

— Joel Garreau

always had throughout history, and yet looked nothing like old downtowns. That was almost three times as many Edge Cities as there were downtowns of comparable size. These were not suburbs. They were their own "urbs." Few had ever talked about these places as such.

Development: *Some downtowns rebounded since your book came out, and many Edge Cities are struggling to stay competitive. For example, Tysons, the archetypal Edge City, is now adding housing, sidewalks and commuter rail. What's next?*

Garreau: What's replacing Edge Cities and old downtowns is this new form of urbanity that's as revolutionary now as Edge Cities were when they first started back in the '70s and '80s. They are so revolutionary that they're dividing Edge Cities and the downtowns into the places that will survive and the places that will die. Because they're going to have to compete with these new places.

The major thing is that these new places encourage novel experiences and face-to-face interaction in places far smaller and more charming and scenic than we're used to seeing in anything so sophisticated. And they're not suburbs. They're typically far from major metros. If you can't compete with that, you're in trouble as a big urban center.

This is the biggest revolution in how we build cities since Edge Cities. It's these places that are a lot like Santa Fe, New Mexico, and they're erupting globally. They're very different from the old-fashioned cities. Their big draw is that technology has allowed them to become urbane without the burdens of being urban.

This is the opposite of suburbanization. This is not sprawl, this is aggregation — people coming together — and dispersion away from industrial-age places to human-scaled places. It's people coming together, but to their ideal places.

As everything digital accelerates, these places are excelling at the one thing that you can't digitize — face-to-face contact — that's becoming more and more rare and valuable. We've discovered during the pandemic how stir-crazy you can get. Face-to-face is important. It's critical to building trust, to falling in love, and often to having fun.

Santa Fe is the classic example of this phenomenon because it's urbane. It has amazing world-class opera, charming architecture, distinguished restaurants — and great places to buy used boots, of all things! Quirky bookstores, mountains and diversity. And with a population of only about 85,000 people.

Development: *What's driving this?*

Garreau: Cities throughout human history have been shaped by the state-of-the-art transportation technology at that time. If the state of the art is shoe leather and donkeys, what you get is Jerusalem at the time of Jesus.

About Joel Garreau

Joel Garreau is a former reporter and editor at The Washington Post who is currently the Professor of Culture, Values and Emerging Technologies, Emeritus College, at Arizona State University. He has been a fellow at The New America Foundation in Washington, D.C., an affiliate of The Institute for Science, Innovation and Society at Oxford, a Science Journalism Laureate at Purdue University, and a member of Global Business Network. He has also served as a fellow at Cambridge University, the University of California, Berkeley and George Mason University. ■

Sixteen centuries later, the state of the art becomes horse-drawn wagons and ocean-going sail. All of a sudden you get cities like Amsterdam, or Boston, and they operate in entirely different ways.

Then railroads produce cities like Chicago. And later, the automobile results in places with multiple cores, like Los Angeles.

Then along comes the jet passenger plane. I will give you an example. In 1955, what was the southwestern-most major league baseball team in the United States?

Development: *St. Louis?*

Garreau: Very good! What happened is that you just simply couldn't maintain a major league schedule if your team is located any farther southwest than St. Louis if you were moving the players by train.

But jets changed all that. They allowed the eruption of world-class metros in places that would not before have been practical — Dallas, Denver, Houston, Atlanta, Phoenix, Sydney, Beijing and so many others.

So, Edge Cities were a combination of the automobile and the jet plane — plus the corporate computer. Then, shortly after "Edge City" came out, the big boom was in the internet, which only a few people knew about when I wrote in 1991. The New York Times archives didn't have more than a dozen references to it, if that. If they ever talked about the internet, it was about the bizarre way that scientists were talking to each other. That was the internet in 1991.

Now, the internet is spurring these "Edge City 2.0's" in places like Santa Fe, where people can get weapons-grade sushi delivered to them overnight and make six-digit incomes while being surrounded by interesting people and trout streams. But not just any remote place. People value natural beauty with remarkable face-to-face. You can see this in commercial real es-

> **"People value natural beauty with remarkable face-to-face. You can see this in commercial real estate right now. Malls are dying, and office buildings are being converted into apartments.** We really haven't seen an old-fashioned Edge City like Tysons built from scratch in 30 years, and it's because these Edge Cities are being replaced."
>
> — *Joel Garreau*

The 15 Fastest-Growing Large Cities

Between July 1, 2017, and July 1, 2018,
With Populations of 50,000 or More on July 1, 2017

Rank	Name	Increase	2018 Total Population
1	Buckeye, Arizona	8.5%	74,370
2	New Braunfels, Texas	7.2%	84,612
3	Apex, North Carolina	6.8%	53,852
4	Frisco, Texas	6.1%	188,170
5	Meridian, Idaho	6.1%	106,804
6	McKinney, Texas	5.4%	191,645
7	Georgetown, Texas	5.2%	74,180
8	Rowlett, Texas	5.1%	66,285
9	St. Cloud, Florida	5.0%	54,115
10	Ankeny, Iowa	4.6%	65,284
11	Dublin, California	4.5%	63,445
12	South Jordan, Utah	4.4%	74,149
13	Midland. Texas	4.4%	142,344
14	Castle Rock, Colorado	4.3%	64,827
15	Round Rock, Texas	4.3%	128,739

Source: U.S. Census Bureau

"Folks like concentrated, walkable real places that have evolved naturally. But they don't want to live like pioneers. **Think Monticello with broadband. These new places look nothing like sprawl."**

— Joel Garreau

tate right now. Malls are dying, and office buildings are being converted into apartments. We really haven't seen an old-fashioned Edge City like Tysons built from scratch in 30 years, and it's because these Edge Cities are being replaced.

You could see this taking off over a decade ago. Wenatchee, Washington, was the fastest-appreciating real estate metro 15 years ago. It was just booming. I thought I knew this continent pretty well, but I had to look up where Wenatchee, Washington, is.

It turns out that Wenatchee is three hours east of Seattle, on the dry side of the Cascades, which explains a lot. Seattle's full of people with great jobs, and Amazon, Microsoft, and the Gates Foundation, and all that. Yet it rains all the time.

Then, I discovered that Wenatchee has over 200 days of sunshine a year, and great skiing, and that it's only three hours away. It was beautiful, enchanting and great for face-to-face, so folks would go there for the weekend and turn to each other and say, "Why are we leaving?"

When you see them arriving on Thursday and returning on Tuesday, that's the revolution. At that point, they're spending more time living and working in Wenatchee than they are in Microsoft's Edge City in Redmond, Washington. To be clear, does this mean that we're now lone eagles? That we're abandoning cities? No. Humans are social animals. Solitary confinement is an extreme punishment, and humans love face-to-face. That's the whole point of these new places that are similar in feel to Santa Fe.

Development: *Is the supply of these places infinite? What do you see as the main constraints? An airport?*

Garreau: That's a really good question. I'm debating this, as I was back in the late '80s with the original Edge City concept, trying to figure out what the laws are. What are the rules? Yes, that was my first guess that the limiting factor was an airport. But I'm finding they'll puddle-jump surprising distances if they love the place enough.

Consider South Jordan, Utah. It's between the 10,000-foot-tall Oquirrh Mountains and the 11,000-foot-tall Wasatch range. It's as if people are wanting something new, something beyond the patterns that had come before. That's why these places are thriving.

Folks like concentrated, walk-

The 15 Fastest-Appreciating Small Cities

Between 2000-2010
With Populations Less than 150,000 in 2020

Rank	Name	Increase	Median Home Price, 2020
1	Lehigh Acres, Florida	148.8%	$183,509
2	Rialto, California	124.2%	$384,574
3	Victorville, California	123.3%	$269,579
4	Vallejo, California	121.2%	$438,032
5	Mesquite, Texas	110.8%	$191,440
6	Lowell, Massachusetts	110.7%	$314,488
7	Warren, Michigan	110.1%	$148,016
8	Antioch, California	108.0%	$480,233
9	Sparks, Nevada	106.8%	$363,894
10	Daly City, California	106.0%	$1,071,308
11	Santa Clara, California	105.7%	$1,235,305
12	Inglewood, California	105.4%	$604,388
13	Miami Gardens, Florida	105.1%	$277,628
14	San Mateo, California	100.7%	$1,425,572
15	Fairfield, California	96.6%	$475,589

Source: U.S. Census Bureau, American Community Survey and ConstructionCoverage.com

"The point is, all these new places are the new competition. They're occurring far beyond what we currently think of as a major metro. **The premiums for these places is that they are not like Tysons.**"

— Joel Garreau

able real places that have evolved naturally. But they don't want to live like pioneers. Think Monticello with broadband. These new places look nothing like sprawl. As I say, it means *urbane*, well beyond what we have ever thought of as *urban*.

So, weekend getaways that look and function like Santa Fe are becoming the new places where people and economies are moving.

Now, that doesn't necessarily mean that Edge Cities and downtowns die. Again, face-to-face interaction is the critical element for any urban agglomeration, and some Edge Cities can pass the test, like Reston, Virginia, for example. That's a good place for face-to-face interaction.

The point is, all these new places are the new competition. They're occurring far beyond what we currently think of as a major metro. The premiums for these places is that they are not like Tysons.

Development: *So the number of these places in the United States could be in the 50s or 100s? Have you settled on a definition of size or scope?*

Garreau: With "Edge City," I had a metric — office space as a surrogate for white-collar jobs. So, I got all that great data from the real estate industry and I divide by square foot per worker, and voila, that's how many white-collar jobs that were there. You can debate whether 250 was the right number of square feet per job, especially as they moved to the cube farms. But it was the best available data.

Now, to do this now with these places, I suspect the most reliable surrogate would be to watch for the most explosive growth in tiny markets far from the majors. That's what tipped me off to Wenatchee. Once the census had to recognize Wenatchee as a metro, the city would appear on the real estate industry's list.

In any case, you do the best you can with the data you have, plus your own experienced eyeballs. You should look at the list of fastest-growing metros, fastest-appreciating metros, and what pops up are these places. The top 10 or top 20 just pop out as the "new Santa Fe's." Then go check them out. ■

Gerard C.S. Mildner. Ph.D., is an associate professor of real estate finance and academic director at the Portland State University Center for Real Estate in Portland, Oregon. **Trey Barrineau** is the managing editor of publications for NAIOP.

The Senior Living Sector is Poised for Growth

At a Glance

- The rapidly aging U.S. population is boosting demand for senior living.
- Independent living, assisted living, memory care and nursing care are the four categories of senior living.
- Statistics show that senior living is a recession-resistant asset class.

Clarendale Six Corners is a 10-story senior living community in downtown Chicago. It is surrounded by dynamic public spaces and an outdoor sky terrace on the fourth floor, as well as 18,000 square feet of street-level retail space.

Rendering by Ryan Architecture + Engineering (Ryan Companies), courtesy of Ryan Companies

An aging population and longer life expectancies are boosting demand for facilities.

By Julie Ferguson

Acoya Troon in Scottsdale, Arizona, is a modern aging community that offers independent-living and assisted-living options for seniors.

Photo by David Schacher Photography, LLC, courtesy of Ryan Companies US, Inc.

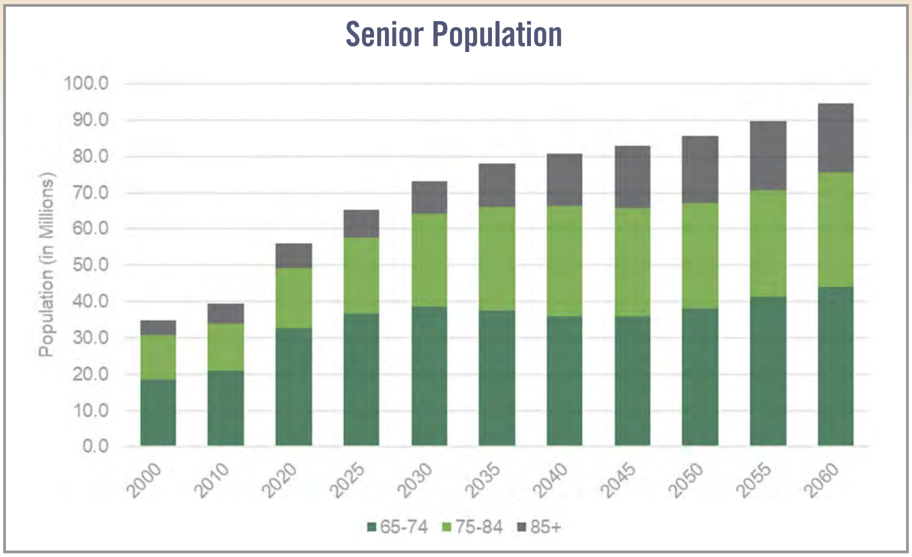
Senior housing is one of the most appealing sectors for real estate investment, and the industry is expected to only become stronger over the next 10 years. Developing high-quality, desirable senior living communities is not just about bricks and mortar or investment returns; it's about creating spaces where people feel safe, supported, connected and cared for. It also includes selecting strategic locations that enable seniors to engage in the surrounding community and experience amenities outside their walls.

The demand for senior living communities will continue to grow through this decade and then accelerate rapidly over the next 20 years due to the aging of the population. In addition, life expectancies have been increasing, acuity levels have been rising, and the wellness and health care needs of seniors will have to be satisfied outside of traditional health care settings — with senior living expected to play an increasingly vital role.

According to the National Council of Real Estate Investment Fiduciaries (NCREIF), the senior living industry is fragmented, with more than 50% of the market space controlled by small owner/operators that own less than 10 communities. About 60% of the existing inventory is 17-plus years old and not designed to meet customers' needs. The financial performance of senior living has shown greater resilience in recent economic cycles compared to almost all other real estate sectors. Data for the senior living sector's annual returns through 2019 exceeded all other real estate sectors' returns on a one-, three-, five- and 10-year basis.

The combination of a growing population and lack of inventory presents opportunities for well-capitalized developers to deliver new properties and to fund needed capital improvements. This is also an ideal time for land brokers to source parcels for development and investment companies. The following summarizes what the current data is saying about senior living, why the sector is thriving and a general summary of how development within this industry works.

The demand for senior living communities will continue to grow through this decade and then accelerate rapidly over the next 20 years due to the aging of the population.



Source: U.S. Census Bureau, 2017 Population Estimates

Baby Boomers and Increasing Life Expectancy

The U.S. population is aging. The massive baby boomer generation, born just after World War II, started turning 65 in 2011. In 2030, this age cohort will all be over 65 — and in 2040, the youngest of the generation will be over 75. This generation is sometimes referred to as a "wave" because it makes up a large percentage of the population and is expected to require a larger share of health support and housing services.

Life expectancy in the U.S. is also on the rise, calling for an increased investment in infrastructure to support a longer living population. According to the Centers for Disease Control and Prevention, the average life expectancy in the U.S. was 76.9 in 2000. By 2060, it will increase to 85.6 due to medical innovations, prevention programs, and support and medication for chronic illnesses.

As the population continues to age, by 2034, the 65-plus population will outnumber children for the first time in U.S. history. By 2060, nearly one in every four people in the U.S. will be 65 years old or older.

As the silent and greatest generations, along with the larger baby boomer generation, live longer, the 65-plus population is expected to increase by 68.9% from 2020 to 2060. During the same period, the 75-plus population will increase by 117.2%, and the 85-plus population by 183.8%. Between 2020 and 2035, the 75 and older age group is expected to see the highest growth rate — an increase of 76%.

Care Types and Community Types

Senior housing generally services those over 75 years and is typically divided into four categories: independent living, assisted living, memory care and nursing care. Out of the four types of services, nursing care is the most traditional and institutional, whereas the other levels of care are more like hospitality and multifamily atmospheres.

The type of community is classified by the units of care offered. For example:

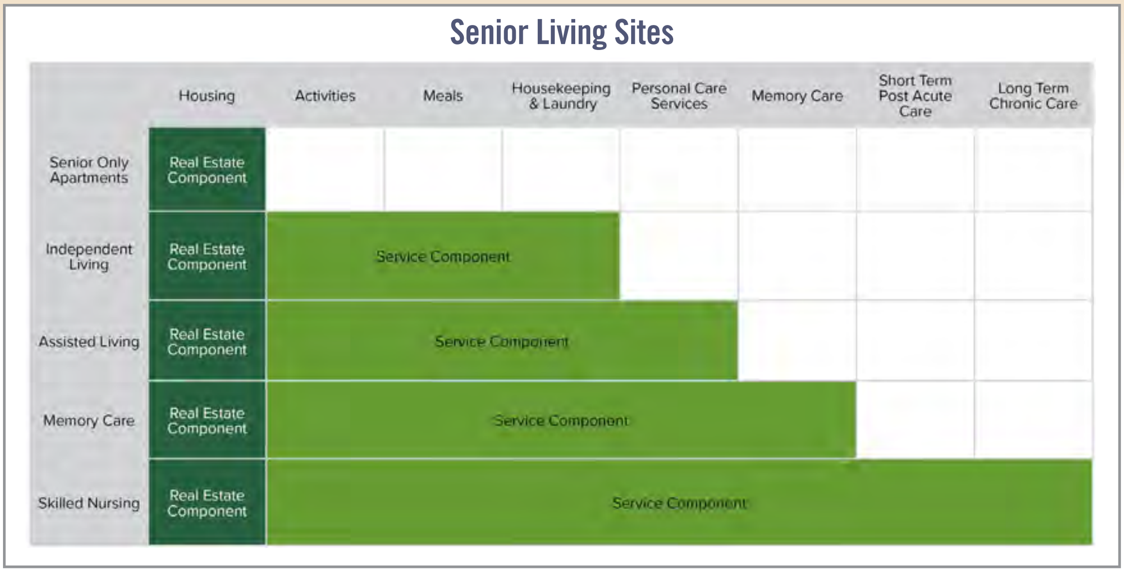
Continuing Care Retirement Communities (CCRCs) can offer everything from independent living to nursing care and everything in between. Not all CCRCs provide nursing care.

Combined campuses provide two different types of care. This does not include a community with both nursing care and independent living because that would be classified as a CCRC.

Freestanding campuses offer only one type of care such as independent living.

The Complexity of Senior Living

Senior living incorporates hospitality, multifamily and health care all in one. Hospitality services include transportation, housekeeping, entertainment, dining options and other amenities. The multifamily component is focused on a home-like setting and providing care services such as assistance with bathing, eating and other activities. Lastly, the health care portion includes skilled nursing, rehabilitation therapy and chronic care.



Source: Ryan Companies US, Inc.

Having a community with multiple care types available requires an in-depth licensing process. In some states, it can take a building a few months to open after construction has turned the keys over. Overcoming licensing challenges, code requirements and the demands of the end-user can be done by viewing senior living developments through a holistic lens and hiring teams with specific senior living experience.

Additionally, it is important to note that the operations and the operator are a primary key to success in senior living. Senior living is an operational business; the value of the buildings is tied to the operational income.

The industry has grown through various development and operating models. Many commercial real estate companies with significant multifamily experience have created teams focused on senior living. They are capitalizing on their housing skills but hiring the talent that understands the nuances of senior living related to development.

Finding the Perfect Site

Site selection can play a key role in the success of a project and the well-being of the residents. Senior housing is a data-driven business, and it is imperative to choose a location where age- and income-qualified households are prevalent. Brokers and developers must do research to income-qualify an area, review the competition and evaluate population trends.

With site selection, there is also an opportunity to place these buildings near accessible amenities such as grocery stores, restaurants and surrounding neighborhoods. Sometimes this means within a suburban area close to local businesses, while other projects are built within an urban environment.

For example, Ryan Companies US, Inc., recently began construction on Clarendale Six Corners, a 10-story senior living community located on a prominent corner in downtown Chicago. It is surrounded by dynamic public spaces and an outdoor sky terrace on the fourth floor, as well as 18,000 square feet of street-level retail space. Not only is this an ideal location for seniors to thrive, but the market research also pointed to a project that will positively impact the local economy.

According to Ryan, on average, a Ryan-developed community creates approximately 100 permanent jobs and generates approximately $6.1 million in construction job wages. Ryan senior living communities also pay an average of nearly $600,000 in property taxes per year.

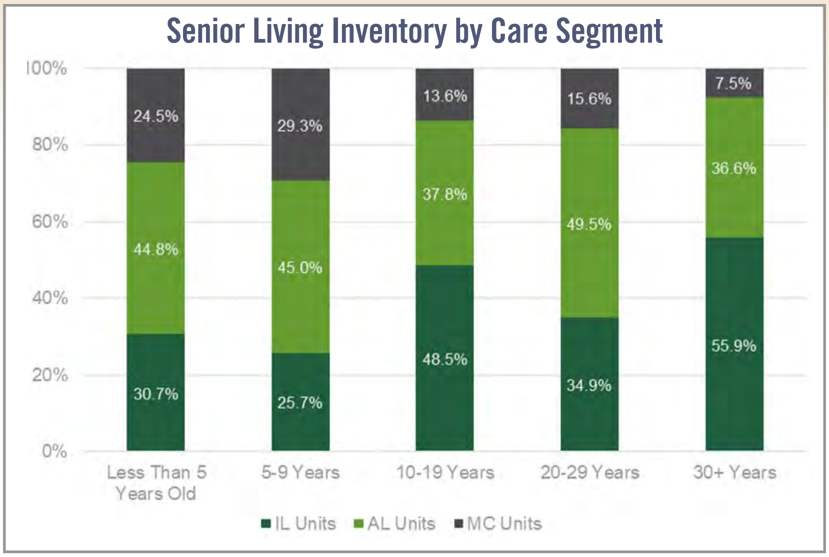
Aging Existing Inventory

According to the NIC MAP® Data Service, most senior living communities are 20-plus years old (58%), while only 14.5% are less than five years old. Many older senior living communities were built without the ability to update technology, health, safety or mobility infrastructure, along with smaller units and less of an emphasis on community spaces. New communities are integrating a more hospitality-centered design to facilitate ease of living and social connections, as well as a sense of community among residents.

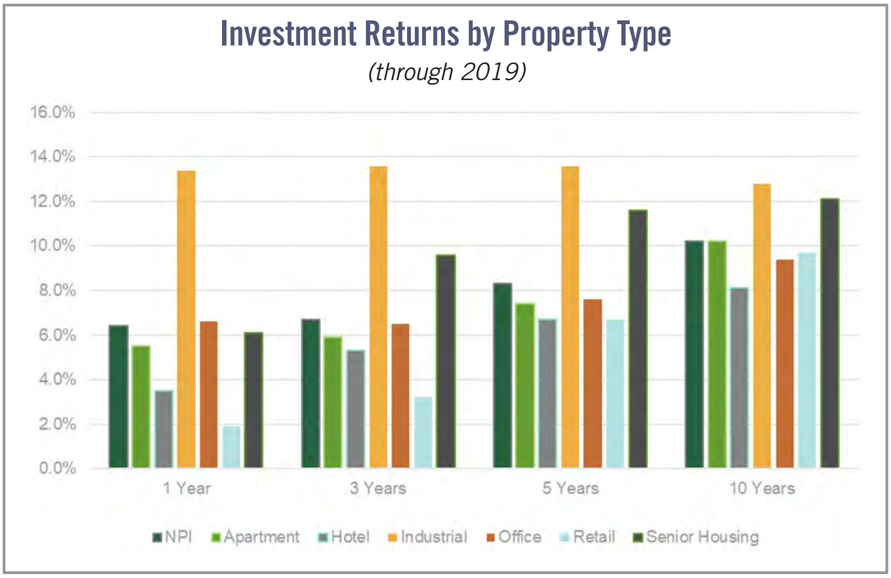
Older inventory of 30-plus years is dominated by independent living


Morgan Sheff Photography, courtesy of Ryan Companies

Talamore in St. Cloud, Minnesota, provides independent care, assisted living and memory care.



Source: NIC MAP© Data Service



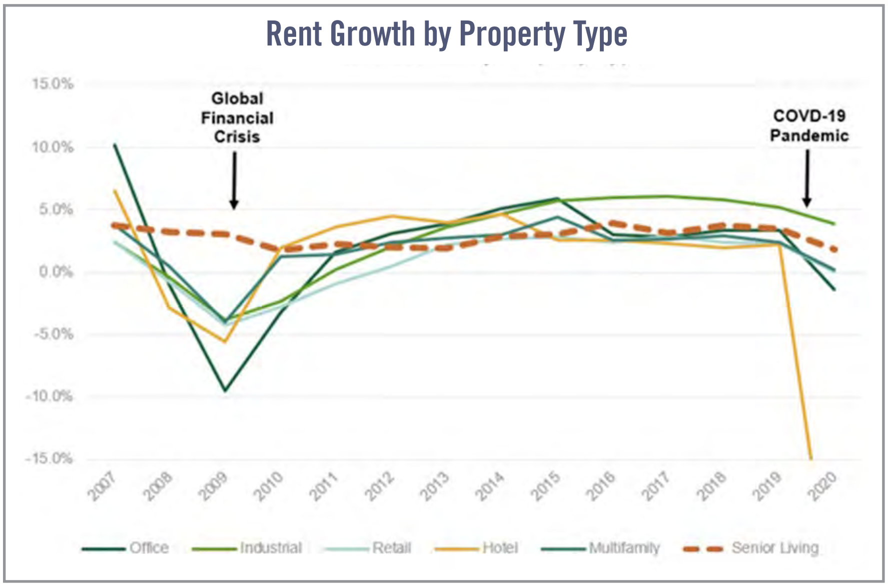
Source: NIC MAP© Data Service

(IL) units, while assisted living (AL) and memory care (MC) make up the majority of those built in the past 10 years. According to the NIC MAP® Data Service, the past five years of construction have been more evenly split among care segment types, with newer construction consisting of 30.7% IL units, 44.8% AL units and 24.5% MC units. As life expectancy continues to increase, the need for AL and MC units has become apparent, and the new inventory reflects this trend. Market research shows that IL construction has also increased during the past five years, as many new communities offer a continuum of care with IL, AL and MC under one roof.

Favorable Investment Returns

According to the NCREIF National Property Index (NPI), senior housing has outperformed the annual returns of most other property types the past 10 years. This data is from the fourth quarter of 2019 and does not include any impact from the COVID-19 pandemic. This dataset, based on a pool of more than 8,200 investment properties, illustrates the long-term stability of senior housing, which has achieved a 12.1% annualized return since 2009.

The inclusion of 2020 data into the NPI index shows a decline in one-year return rates for senior housing (1% vs. overall NPI of 2.1%). However, the long-term returns show an escalation to 10.1% for a 10-year annualized return, in contrast to a 7% overall NPI and 6.7% for traditional multifamily.



Source: NIC MAP© Data Service. All other property types, CoStar

The combination of a growing population and lack of inventory presents opportunities for well-capitalized developers to deliver new properties and to fund needed capital improvements. This is also an ideal time for land brokers to source parcels for development and investment companies.

Growing Buyer Rates

The buyer profile for the senior living asset class has continued to expand as an understanding of the property type has increased. Over the past five years, buyers have represented a mix of institutional investors, REITs and private equity investors.

Real Capital Analytics reported that transaction volume in 2020 was greatly impacted by the COVID-19 pandemic, falling 49% from the previous year.

According to CBRE and Real Capital Analytics, in 2020, international buyers made up 2.3% of sales, while institutional buyers (banks, retirement and hedge funds, insurance companies) fell to 20.7%. REITs dropped to 15.8% in 2020. Most sales (60.6%) were completed by private investors, including Merrill Gardens and AEW Capital Management with the acquisition of 10 properties and the sale of 10 properties by Healthpeak Properties to Aegis Living and Blue Moon Capital Partners.

Recession-Resilient Asset Class

Senior living has weathered several global crises better than many other asset classes. According to CoStar, rent growth dipped to 1.8% in 2010 in the aftermath of the global financial crisis, while many other asset classes saw negative growth in 2009 and 2010. From 2011 through 2019, rent growth for senior living fluctuated between 2.0% and a high of 3.9% in 2016. After year-over-year rent growth of 3.5% in 2019, rent growth again dropped to 1.8% as COVID-19 had an impact on all asset classes. All other asset classes, barring industrial, saw negative or no rent growth during 2020.

From 2013 through the end of 2019, stabilizing senior living communities were on average 90.6% occupied while absorbing a total of 88,600 units over a seven-year period, according to the NIC MAP® Data Service. At the end of 2020, stabilized occupancy fell to 82.9%, as the pandemic reduced — and in some cases halted — move-ins to senior living communities. Absorption was negative for the first time as move-ins to existing communities slowed and new units were still being delivered to the market. The NIC MAP® Data Service shows that move-ins have started to increase during the second quarter of 2021. The rising number of move-ins follow the increase in the number of vaccinated residents and employees at communities. The CDC has reported that the average vaccination rate among residents in senior living communities is well over 70%.

Morgan Sheff Photography, courtesy of Ryan Companies

Grand Living in Lake Lorraine, South Dakota, offers independent living, assisted living and memory care.

New developments continue to attract interest from equity investors and lenders because projects started today will take 18-24 months to build before they open, allowing enough time for the impacts of COVID-19 to be dealt with.

Consumer Sentiment in a Post-COVID World

The senior living sector was challenged during the COVID-19 pandemic with decreasing occupancy, negative press and increased expenses. Operationally, the senior housing market was prepared for the pandemic; the industry has infectious-disease protocols in place to manage seasonal flu outbreaks and other viruses. However, because of COVID-19, the existing protocols were used and then modified with CDC guidelines to keep the residents and employees safe. Most communities went into lockdown mode, allowing only essential team members in the building and implementing quarantine protocols for new residents and any resident having left the building.

During the pandemic, the needs-based care residents continued to move in at a steadier pace in comparison to independent living seniors that do not need as much care. Many families discovered they could not take care of their elderly family members and their children while everyone was home at the same time during the pandemic.

New developments continue to attract interest from equity investors and lenders because projects started today will take 18-24 months to build before they open, allowing enough time for the impacts of COVID-19 to be dealt with.

According to a survey conducted by ProMatura Group, an Oxford, Mississippi-based senior living market research firm, prospective residents and their families continue to desire to use senior living services in the future. Many in the industry or those with elderly loved ones have the same goal in mind, which is to offer spaces for seniors to thrive.

Developers, operators, equity groups, lenders and senior living industry organizations all believe that senior living is experiencing a near-term bump in the road, and the long-term outlook for the sector remains positive. Despite a challenging 2020 and even a slow start to 2021, deals are being made, and construction in the senior housing market is regaining momentum. ■

Julie Ferguson is senior vice president for senior living at Ryan Companies US, Inc.

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– **Mackenzie Ford**
Investment Manager, Prologis

NAIOP of Florida Achieves Major Legislative Victories

Association's advocacy efforts paid off amid challenging circumstances.

By Thomas G. (Trey) Wilson, III

The COVID-19 pandemic created new challenges in the lawmaking process across the country. Many legislative bodies canceled in-person meetings and committee hearings altogether. Others converted them to virtual platforms. This made the personal interactions and the relationship-building that are central to effective advocacy more challenging, but it did not deter NAIOP of Florida. In fact, the 2021 legislative session was one of its most successful.

NAIOP of Florida consists of five chapters throughout the state. Each faces unique local legislative challenges. Recognizing the importance of speaking with one voice in Tallahassee, regular meetings are held in advance of each legislative session to discuss the policies that are most important to the commercial real estate industry across the state. During an annual summit, agreed-upon positions are formalized with written summaries, which helps ensure that the group's advocacy is focused and uniform.

Getty Images

NAIOP of Florida achieved several major legislative victories in Tallahassee during the past year.

Not Slowed by COVID-19

Ordinarily, NAIOP of Florida members gather in Tallahassee during session to meet with legislators. That wasn't possible during the 2020 and 2021 sessions. Refusing to let important objectives rest, members generously donated their time by attending multiple virtual meetings with lawmakers and participating in letter-writing campaigns to help keep the association's legislative priorities at the fore.

The effort paid off when Gov. **Ron DeSantis** signed Senate Bill 50 into law on April 19. This addressed two of NAIOP of Florida's top legislative priorities: the collection of state sales tax on internet transactions and, starting as early as 2023, a significant reduction in the business rent tax from 5.5% to 2%. Prior to 2021, Florida was one of the few states that did not levy sales tax on internet transactions. It remains the only state to do so on commercial rental income. Years of hard work and incremental successes laid the groundwork for this significant tax reduction.

NAIOP of Florida scored a second major policy victory with the passage of legislation that reformed the local permitting process. The enactment of House Bill 1059 on June 29 will make significant improvements to that process with increased transparency, certainty and predictability. Starting on October 1, local permitting agencies must implement the following measures:

- Allow for electronic filing of a permit application.
- Provide updated posts of the application's status on their website.
- Maintain a current page on their website concerning the process for receiving, processing and approving an applicant's permit.
- Reduce the permit fee if a local permitting agency does not meet statutory deadlines for reviewing an application.

Finally, House Bill 1209, signed by the governor on June 16, addressed another NAIOP of Florida priority — the delayed implementation of minimum radio signal strength upgrades for fire department communication in commercial buildings from January 1, 2022, to January 1, 2025, with permitting required by January 1, 2024. This will allow for technological advancements that are expected to reduce the onerous cost of implementation, which is approximately $1 million for a Class A high-rise building.

These successes, along with passage of legislation in 2020 that dispensed with the archaic requirement that com-

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mercial leases be witnessed, show that public policy can still be effectively shaped by advocacy amid a pandemic. But it would not have occurred without the steadfast dedication and continued involvement of the local chapters and their members. Each chapter — Central, Northeast, Northwest, South Florida and Tampa — contributed countless hours to the effort. That work is harnessed and directed in the most effective way possible with the guidance of NAIOP of Florida lobbyist **Chris Carmody**, a shareholder at GrayRobinson, PA, in Orlando.

Looking Ahead

NAIOP of Florida won't be idle as the legislature prepares for the 2022 session. The group recently held its statewide Public Policy Summit in Orlando, which included representatives from each chapter. Members discussed the issues facing the industry, identified potential solutions and established legislative priorities to advance in Tallahassee next year. Topics included building maintenance and inspection (especially important in the wake of the Champlain Towers South condominium collapse disaster in Surfside), the state's economic competitiveness, representation on the Florida Building Commission, infrastructure and the environment.

Legislative victories such as those of the past several years don't come easily. They are the result of a continued and sustained effort to build relationships, participate in coalitions and educate lawmakers on public policy initiatives that affect commercial real estate. The Florida Legislature will convene next year and NAIOP of Florida will be there, at the table, to support those initiatives that advance the interests of commercial real estate, spur economic growth, and create jobs for the benefit of Florida's communities, residents and families. ■

Thomas G. (Trey) Wilson, III is a partner at DMHD.

Innovation Brings Change to Commercial Construction

New technologies promise higher quality, faster timelines, lower costs.

By Shawn Moura, Ph.D.

Commercial construction has lagged other major industries in technological change for a variety of reasons. Design requirements and site conditions are usually particular to an individual project, making economies of scale difficult to achieve. The industry is composed of many smaller firms encompassing a range of professions and specializations, complicating the adoption of new technologies. Smaller firms often lack budgets that would allow for significant investments in new equipment.

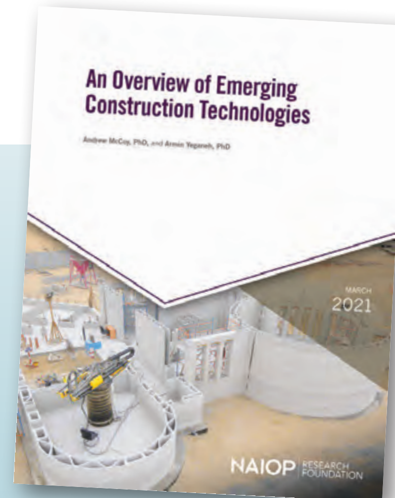
These and other factors have limited the productivity growth that other major industries have generated from technological innovation. Commercial construction remains a labor-intensive industry, but in recent years it has faced a persistent and growing labor shortage, leading to rising costs for contractors and developers.

Fortunately, recent advances have enabled a new generation of more efficient, flexible and adaptable construction technologies, with a range of applications including design, quality control, risk mitigation, site monitoring and project management. The NAIOP Research Foundation has published a new report titled "An Overview of Emerging Construction Technologies" by **Andrew McCoy**, Ph.D., and **Armin Yeganeh**, Ph.D., that explores these advances. The report draws from interviews with researchers and industry practitioners to profile key emerging construction technologies and examine their implications for the commercial construction industry.

Familiar Technologies on Construction Sites

The report includes an evaluation of emerging technologies that are increasingly common in commercial construction. Many of these can be used in most commercial projects. For example, geospatial technologies, like geographic information systems and satellite remote sensing, can facilitate site surveying and risk mitigation for most project types. Wearable sensors can help project managers track worker locations and limit their exposure to workplace hazards across different construction sites. This type of broad applicability has led most construction practitioners to employ one or more emerging technologies in their projects. The report reveals that many newer technologies present relatively low barriers to adoption and can be incrementally integrated into existing construction practices.

Other emerging technologies, such as modular construction, require more significant changes to the way projects are organized, but are nonetheless becoming more common due to their potential benefits. For example, modular construction makes extensive use of prefabrication, lowering material and onsite labor costs and shortening project timelines, but it requires substantial changes to the planning and execution of projects. These include additional investments in design and advanced planning for the procurement, transportation and installation of modular components. It is currently most cost-effective for projects that can be scaled using repeated forms, such as multifamily or hospitality projects.



Get the Report

To view and download "An Overview of Emerging Construction Technologies," visit www.naiop.org/en/Research-and-Publications/Research-Reports ■

Technologies on the Horizon

A range of emerging technologies, from additive manufacturing to mass timber and autonomous construction vehicles, have only been implemented in a limited number of commercial projects, but McCoy and Yeganeh believe their full potential has not yet been realized. Some technologies will likely become more widespread as their capabilities

Fortunately, recent advances have enabled a new generation of more efficient, flexible and adaptable construction technologies, with a range of applications including design, quality control, risk mitigation, site monitoring and project management.

expand. For example, construction robots and autonomous construction vehicles currently have a limited range of applications because most are constrained to specific tasks or a specific operating environment. Advances in artificial intelligence, sensors and communications technologies should allow robots and autonomous vehicles to perform a wider range of tasks in more complex and dynamic environments.

The widespread adoption of other technologies, like mass timber, will be more dependent on changes across the construction industry. Firms that are interested in working with cross-laminated timber (CLT) need to adapt their design and construction processes to incorporate the material, and they currently have access to a limited range of CLT suppliers. There is room for improvement in mechanical connections for CLT, and firms have only begun to erect taller mass timber buildings. As more mass timber projects are completed, orders grow for CLT components and more firms become familiar with the material, the cost of using mass timber relative to conventional construction materials should decline.

Other emerging technologies, such as modular construction, require more significant changes to the way projects are organized, but are nonetheless becoming more common due to their potential benefits.

Firms can expect that other emerging technologies will follow a similar arc: as a technology becomes more common, incremental costs to adopt the technology will decline and it can be applied to a broader range of projects. However, as the report reveals, the adoption of even low-cost technologies may require substantial changes in how firms organize projects and recruit and train personnel. Developers, contractors and others engaged in commercial construction can refer to the report to evaluate the benefits and limitations of individual technologies and prepare their organizations for technological change. ■

Shawn Moura, Ph.D., is the director of research for NAIOP.

Chapter Profile: NAIOP Austin

The association's newest chapter sets up shop in the fastest-growing city in the U.S.

By Trey Barrineau

Austin, Texas, is the fastest-growing major metropolitan area in the country, according to the most recent data from the U.S. Census Bureau. The Austin metro area has added about 579,000 residents since 2010, an increase of 34%. The city is a key part of the "Texas Triangle," a region that includes Dallas-Fort Worth, Houston and San Antonio and is home to more than 18 million people — about 70% of the state's population.

In 2017, U.S. News named Austin the No. 1 place to live in the country. The city offers a high quality of life, relatively affordable housing and a strong job market, particularly in the tech sector. As a result, Austin is attracting many transplants from across the country, and particularly from the West Coast.

That growing population base helps support Texas' robust commercial real estate industry. According to "Economic Impacts of Commercial Real Estate, 2021 Edition," published in January by the NAIOP Research Foundation, the industry contributes $65.6 billion to the state's GDP and supports nearly 430,000 jobs.

Austin is also home to NAIOP's newest chapter, which launched in 2020. Development magazine asked chapter president **Brian Brooke**, a vice president with Trammell Crow Company's Austin Business Unit, to discuss commercial real estate trends in the city.

Development: *How are the market conditions for member companies in the Austin area?*

Brooke: Market conditions are generally good. On the office side of things, we do still have a fair amount of sublease space to burn through, but leasing activity improved the first half of this year. Rents suffered through COVID-19, but they are already back above where they were in 2019. Despite a tough 2020, Opportunity Austin observed that it was a record year for firms announcing relocations to or expansions within Austin, so most folks believe the recovery will be swift.

> **"Despite a tough 2020, Opportunity Austin observed that it was a record year for firms announcing relocations to or expansions within Austin, so most folks believe the recovery will be swift."**
>
> *— Brian Brooke, president, NAIOP Austin*


Getty Images

The Austin, Texas, metro area has added about 579,000 residents since 2010, an increase of 34%. The city is the state capital and the home of the University of Texas.

In the industrial world, competition for good industrial land is tight, existing product vacancy is low, and institutional capital is clamoring to get in the game. Austin has recently seen trades at record cap rates and record dollar-per-square-foot figures.

Development: *What are the challenges you're facing in either the business or regulatory climate in Texas and the Austin area?*

Brooke: Permitting time frames are long and getting longer. Coupled with rising land costs, developers are forced to buy land ahead of achieving full entitlements and receiving necessary permits. This is an added risk, and it increases the cost of development citywide. Austin needs to address the permitting process before it gets even more cumbersome.

Inconsistent density bonus fees make underwriting new developments a challenge. The city needs density to help alleviate rising housing costs, and developers can achieve additional density by participating in a density bonus program. However, the fees a developer must pay via the program to achieve that additional density are not always clear, and the rules often change. This causes unpredictability and adds unnecessary costs to development.

(According to a May 2021 article from the Austin Monitor, Austin's Downtown Density Program "offers developers more height and density in exchange for on-site affordable housing and/or fees-in-lieu toward housing vouchers and permanent supportive housing for people experiencing homelessness. The projects also must adhere to green building standards and urban design guidelines.")

"We want to develop some legislation that focuses on improving permitting time frames. Georgia seems to have done so with some measure of success, so following their lead may be a good next step."

— Brian Brooke, president, NAIOP Austin

Lastly, the labor market is tight and increasingly challenging for employers. In some cases, there are more job openings than there are workers to fill them. Across the board from the construction industry to the tech industry, firms cannot hire fast enough.

Development: *What are the big opportunities in commercial real estate in Austin right now?*

Brooke: Build something faster than the next guy. With the permitting process as long and as challenging as it is and with good developable land hard to find, if you're under construction now, you're ahead of the game.

The CRE industry in Austin (and the city as a whole for that matter) can learn from other cities that have experienced similar growth. Austin is well on its way to becoming a "big city," and we should consider what is and is not working in other big cities such as San Francisco and Los Angeles, and other growing "peer" cities like Denver, Nashville, Phoenix, Raleigh-Durham and even Minneapolis. Public officials as well as Austin's leading developers should be spending time with the leaders in these other cities (and they are, to some extent) and learning from the mistakes and successes of others.

Development: *What are some of your other legislative priorities?*

Brooke: We want to develop some legislation that focuses on improving permitting time frames. Georgia seems to have done so with some measure of success, so following their lead may be a good next step. In line with other NAIOP chapters, we should push back on 1031 elimination and increased property taxes assessed at disposition. Austin cannot afford to move in the wrong direction here.

"One of the great things about launching a new chapter is having the opportunity to work very closely with a small group of people."

— Brian Brooke, president, NAIOP Austin

Development: *Education is an important part of NAIOP's mission. Have there been recent educational sessions specific to the Austin area or your chapter recently?*

Brooke: We are still in our chapter infancy, so we have not yet had any, but we're planning some special educational events for the fourth quarter of 2021.

Development: *Tell us about the challenges and rewards in launching a new NAIOP chapter?*

Brooke: One of the great things about launching a new chapter is having the opportunity to work very closely with a small group of people. If we were already an established chapter full of hundreds of folks, me and the other board members would not have had the opportunities we've enjoyed getting to know the NAIOP membership so well on a personal level. Building new relationships has been the most rewarding part of the adventure, no doubt.

On the other hand, because we aren't a large group yet, all the work falls on fewer shoulders. But we're having fun with it all. ■

Trey Barrineau is the managing editor of Development magazine.

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Four Students Receive NAIOP Diversity Student Scholarships

The association awarded scholarships to graduate students from backgrounds traditionally under-represented in the commercial real estate industry.

By Hannah Buckles

NAIOP is pleased to announce the recipients of the 2021 NAIOP Diversity Student Scholarships.

The scholarship program was established in 2016 to support students pursuing degrees at NAIOP university member schools that will lead to careers in the commercial real estate industry. Preference is given to students from backgrounds that have traditionally been under-represented in the industry. In addition to $5,000, beneficiaries also received complimentary registration and a $1,000 travel stipend for NAIOP's CRE.Converge 2021 conference in Miami Beach, Florida.

Applications were reviewed by a panel of industry experts, and four candidates were selected as the 2021 awardees. All winners are NAIOP student members and on track to become leaders in commercial real estate in each of their respective fields, which range from architecture and design to development and land-use regulations.

In addition to $5,000, beneficiaries also received complimentary registration and a $1,000 travel stipend for NAIOP's CRE. Converge 2021 conference in Miami Beach, Florida.

Margarita Effron is a law clerk with The Vakula Law Firm in Phoenix, Arizona, who plans to combine her background in law and her Master of Real Estate Development degree from Arizona State University to create solutions for cities in the Phoenix metropolitan area that are experiencing rapid urbanization. Effron focuses on the effects that government policies and legislation can have on the economy and commercial real estate development. She is particularly interested in land-use law.

During her academic career, Effron became involved in zoning modifications for several projects, including the Chula Vista Bayfront mega-project in Southern California, and she learned how policies and regulations can work with responsible development to boost the socioeconomic conditions of a community. Long-term, Effron plans to focus her career on mixed-use development and consult on land use and zoning issues in Arizona.

As an immigrant to the U.S. with no family in the country, Effron is thankful for her professors who encouraged her with positive feedback and her mentor **Mark Stapp**, executive director of the Master of Real Estate Development program at Arizona State University, for breaking down complex issues and always being kind and supportive.

Antonio Garcia is a graduate student who began his academic career at the University of Colorado, Boulder and has since transferred to New York University, where he plans to complete a Master of Real Estate degree in 2023. He is a descendent of the Spanish and Mexican people who migrated to what is now Mora, New Mexico, as part of the 1845 Mora Land Grant. Thanks to his grandfather's decision to move the family for better educational opportunities, his parents were able to invest in single-family homes and turn them into rental properties. Garcia says his parents ingrained an entrepreneurial attitude and work ethic into him by taking him to work with them at their properties.

As an undergraduate at the University of Colorado, Garcia began his own foray into real estate analysis and investment. In the first year of operations, his company performed more than 50 transactions, including investment in single-family homes and sourcing of distressed properties for other retail and portfolio investors.

Garcia currently works as an analyst with Hanover Street Capital in New York City. In the future, he would like to work as an investment analyst and eventually operate a value-add private equity firm and invest in neglected neighborhoods in need of capital.

All winners are NAIOP student members and on track to become leaders in commercial real estate in each of their respective fields, which range from architecture and design to development and land-use regulations.

Nusheen Majidi is pursuing master's degrees in architecture and real estate development at the University of Maryland, College Park, and she expects to complete her studies in December 2021. She is a first-generation American and is passionate about international culture as well as health and well-being. As a fitness instructor with a Bachelor of Science in kinesiology, Majidi is focused on conscientious building design and development that benefits the public and the environment.

Majidi has maintained her unique perspective through courses in public health, urban design and multicultural planning, and she participated in the 2021 Department of Housing and Urban Development's Innovation in Affordable Housing Competition.

She has earned several scholarships, and her ultimate goal within commercial real estate is to become an architect-developer with a firm focused on health and sustainability. Majidi currently works as a graduate administrative assistant.

Jasmine Murphy is an architectural designer at Stevens & Wilkinson, Inc., in Columbia, South Carolina. She is also pursuing a Master of Real Estate Development at Clemson University and expects to complete her degree in December 2021.

Murphy believes that her experience growing up in a military family — moving 12 times throughout her childhood — has helped her learn to thrive and adapt quickly to new people and places. Even so, Murphy values community. She demonstrates this through volunteerism as a former teacher assistant at the Savannah College of Art and Design and as a childcare helper at Cornerstone Community Church in Orangeburg, South Carolina.

She also expresses her love of community through her enthusiasm for multifamily and mixed-use development.

"I long to be able to create a safe place where one can come and let down their guard… and a place where one always feels welcomed," she says.

As she continues in her commercial real estate career, Murphy plans to prioritize relationships with surrounding communities and public officials to ensure her work in building and site design will leave a positive impact for the future generations who will experience the built environment. ■

Hannah Buckles is the member services coordinator for NAIOP.

NAIOP represents commercial real estate developers, owners and investors of office, industrial, retail and mixed-use properties. It provides strong advocacy, education and business opportunities, and connects its members through a powerful North American network. **For more information, visit naiop.org.**

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NAIOP Surveys Show a Positive Future for CRE

Molly Ryan Carson

In April 2020 — just as the pandemic was becoming a reality — NAIOP began surveying our members on how the coronavirus was impacting their businesses.

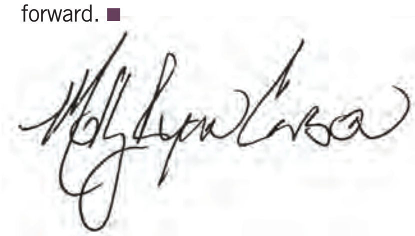
The survey results have provided real-time insights into how the outbreak was affecting development and the measures that commercial real estate firms were taking to retain tenants, improve safety and shore up their operations. Respondents represented a range of professions, including developers, building owners, building managers, brokers, lenders and investors.

During the 15 months spanned by the survey, expectations for a steady but sluggish recovery were a consistent finding. During our final survey in June, one of the biggest repercussions of the pandemic was revealed: Although business conditions have improved for commercial real estate, 86.6% of developers reported delays or shortages in obtaining construction supplies — an all-time high since the survey began in April 2020. This suggests that supply chain disruptions may outlast other effects of the pandemic, increasing construction costs and slowing new development.

Respondents reported rising deal activity for office and industrial properties, and for the first time since NAIOP began the survey, most participants reported retail property acquisition or development activity in their markets. Long-standing delays in permitting or entitlements remain a hindrance to development.

While we were all surprised by the fast-rising pandemic and couldn't have been fully prepared for the unthinkable, the lessons we learned from past downturns helped inform our decisions as we navigated these uncharted waters. Our industry wasn't over-leveraged or overbuilt; we rapidly adapted to new ways of working; and companies made strategic decisions to expand or refinance as opportunities allowed.

As our industry and global economy rebounds, I encourage you to look to NAIOP for knowledge and connections, whether through our upcoming conferences, our robust library of courses or our research. I couldn't be prouder of how much we have shared with each other throughout the pandemic. I look forward to a stronger organization and industry as the recovery moves forward. ■



Molly Ryan Carson, Senior Vice President
of Real Estate Development, Market Leader,
Ryan Companies US, Inc.
2021 NAIOP Chair

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Learn More

Read detailed reports on each of the NAIOP Coronavirus Impact Surveys on the NAIOP Market Share blog: blog.naiop.org/tag/survey-results/ ■

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